FY2011 Marine Aviation Plan

Deputy Commandant for Aviation

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
3000 MARINE CORPS PENTAGON
WASHINGTON, DC 20350-3000

IN REPLY REFER TO:
13000
A
16 Sep 10

From: Deputy Commandant for Aviation
To: Distribution List

Subj: FISCAL YEAR 2011 MARINE AVIATION PLAN

Encl: (1) FY2011 Marine aviation Plan (AvPlan)

1. The AvPlan is a consolidated action plan that provides a graphic overview of Marine Corps aviation total force; aviation readiness; and planned organizational, aircraft and equipment transitions over the next ten years. The AvPlan shall be revised annually in order to update Marine aviation policy and program decisions as they are modified.

2. This version of the AvPlan supersedes all previous versions.

3. Forward all recommended changes to the Deputy Commandant for Aviation (APP-4).

4. This Aviation Plan is applicable to the total force.

G. J. TRAUTMAN III

The Marine Air-Ground Team: Afghanistan

(*This letter was written on a small piece of paper, by an infantry officer - call sign “Chosin” - and was handed to a helicopter pilot on a mountaintop LZ in Afghanistan.)

I wanted to take the opportunity to thank you for your continued hard work and support. You have done great things for our morale down at Patrol Bases Koshtay and Khanjari.

By far the most motivated I have seen our Marines was on 28 July. We had three squads in contact and we had taken a casualty. A mixed “Repent” section came on station and as usual the enemy went to ground. The enemy’s fear of you is palpable.

The dustoff CASEVAC bird landed about 300 meters long, and at that point the enemy fired upon both the dustoff bird and the Marines loading the casualty. The Repent section quickly assessed the situation and suitcased the attack. All that was left was for me to clear them hot.

A tremendous cheer erupted from the Marines as the rockets and guns found their mark. The enemy fire was silenced. Dustoff was able to depart and our squads maneuvered under the overwatch Repent provided. We are just as frustrated as you by the tactics of our elusive enemy.

The staccato beat of your rotors is a very motivating sound. And for the Marines to see the accuracy and devastation of Repent’s weapons firsthand caused our morale to soar.

So thanks again and know that your efforts and hard work are greatly appreciated by us down here. Your presence on the battlefield instills great confidence in the Marines and sailors. They know as long as you are there, they will be okay. Keep giving them hell!

Semper Fidelis

Chosin 81

Message from the Deputy Commandant for Aviation

The climes and places we have taken aircraft and Marines since 2001 are among the most dangerous and demanding on the planet, and we have excelled. We have taken the fight to the enemy in two theaters, and we are succeeding.

Your 2010 tactical aviation force has more than 580 rotary-wing aircraft, over 100 tilt-rotor Ospreys, and more than 450 fixed-wing jets and transports. These aircraft have proven themselves at war, but have been subjected to the extraordinarily harsh conditions and the relentless operational tempo with which all of us are familiar. The readiness rates of deployed aviation assets, though, have been exceptional, due to the work ethic and proactive aircraft maintenance efforts of our Marines in the fight.

As we support those forces in theater, we execute concurrently a modernization plan that will take us to 2025 and beyond. Marine STOVL Joint Strike Fighters remain on track to reach initial war-fighting capability in fiscal year 2013 – less than three years from now. We will buy 420 of these next-generation platforms to replace our fleet of Harrier, Hornet and Prowler aircraft. Our F-35Bs will perform with precision the Corps' traditional TACAIR missions such as close air support, strike, ISR and electronic attack. The F-35's low-observable design also introduces sensors, communication links and fused data streams that will serve the MAGTF commander with a quantum leap in situational awareness.

The MV-22 Osprey is carrying out its seventh and eighth VMM deployments – five to combat and three afloat with a MEU - and we are well on the way through our planned buy of 360 of these one-of-a-kind tilt-rotor assets. This aircraft provides ground forces with speed, range, and altitude no helicopter can match, and its swift, quiet vertical insertion capability is changing the modern battlefield. The KC-130J is our new Hercules, a tactical refueler now completely deployed across the active fleet, and its Harvest Hawk mission kit will add to the MAGTF's airborne fires.

The CH-53K will replace the heavy-lift CH-53E Super Stallion, and will triple the raw lifting power of the CH-53E while exceeding that workhorse's range. Our H-1 helicopters, the UH-1N Huey and the AH-1W Cobra, will be replaced by a total of 349 Y and Z models (160 and 189, respectively), which are 84% identical. These helicopters will add payload, range, speed, durability, weaponry and tactical flexibility to the deployed MAGTF. The UH-1Y has already deployed aboard ship and into Afghanistan, and in both environments has demonstrated its superior lift and range. The AH-1Z is developing swiftly and smoothly into what will be a dominant attack helicopter.

We are proud of the performance of our Marines in today's fight in Afghanistan, but we are also preparing for the next war while we return to our roots as the nation's seaborne expeditionary force. In the past twenty years, American amphibious forces have responded to crises and contingencies at least 104 times - a response rate more than double that of the Cold War. In 2010, the Marine Corps demonstrated our unique proficiency in amphibious operations in places as diverse as Haiti and Pakistan, and we continued to hone our expertise in this unique and demanding brand of power projection with continuous MEU presence in the Western Pacific and split-ARG operations in the Arabian Sea.

With minimal logistical support, the Marine Corps can focus on providing maximum combat power to the joint force. In order to rapidly move large numbers of Marines into Southern Afghanistan, for example, Marine Expeditionary Brigade – Afghanistan (MEB-A) leaned on the aviation expeditionary enablers resident within the ACE. These were our Marine Wing Support Squadrons (MWSS); medium and heavy lift assault support aircraft like CH-53D and CH-53E helicopters; our MV-22 tilt-rotor: our UH-1N and Y and AH-1W helicopters; and the KC-130J. These were the strategic assets that enabled MEB-A to build-up combat power quickly across the breadth and depth of their battlespace.

To add to the challenges, it is more than 400 nautical miles from the sea to center mass of what was then our area of operations. That is a very long way for us to project power, and an even longer way to sustain logistics and its concomitant warfighting punch and sortie generation. As we moved into Afghanistan and built what is now a robust and maturing battlespace, our MWSS Marines and Seabees first established just enough infrastructure to ensure an adequate state of combat readiness. They then turned their attention to building a 4,300 foot landing strip, which allowed us to surge logistics support and aviation command and control into Forward Operating Base (FOB) Dwyer.

Projecting force across those 400 miles, our MWSS experts over the last year have laid down a temporary airfield and made it permanent, allowing us to obtain a foothold in the more than 77,000 square miles for which we are responsible. The Taylor Expeditionary Airfield (TEAF) at Dwyer represents what the Marine Corps truly is: the nation's fast, lethal, austere combined-arms force, most ready when the nation is least ready. Dwyer was created in less than thirty days, in an environment which is among the most austere on earth.

We then ripped up the airfield and rebuilt it, even larger and with better engineering subbase and base course construction, in under 45 days. We now work from a 6,100-foot runway, with ramp and parking space totaling nearly 800,000 square feet, and have laid down over 1.6 million square foot of AM-2 matting in the middle of the desert. M-31 arrestment equipment was added recently, making the airfield capable of trapping F/A-18s.

More important than this sort of expeditionary engineering success is the end result: more aircraft in the air. Sortie generation yields speed, shock and tempo, allowing us to respond to our ground forces in minutes, and to take the fight to the enemy. This is the endstate of what STOVL visionaries foresaw thirty years ago, and Marines are alive today because Marine aviation is up forward, living hard and in the fight side by side with our ground forces.

The expeditionary effort in Afghanistan is an example of the MAGTF at work, and reflects our character, mindset and drive. Our predecessors, like the Marine on Guadalcanal in the 1943 photograph on page one, did what we are now doing. They too went into the most hostile and desolate of environments, immediately set about building airfields to generate sorties in support of ground forces in the fight, and projected power in support of our nation's campaigns.

As we approach the 100th anniversary of naval aviation, it is clear that those Marines who have gone before would be proud of all of you today. The warfighting ethos of today's Marine Corps is what will bring us success in this fight, and in the next.

Semper Fidelis,

George J. Trautman III

George J. Trautman III

Table of Contents

Section 1 --- Marine Aviation Organizational Structure

2011 Marine Aviation Plan

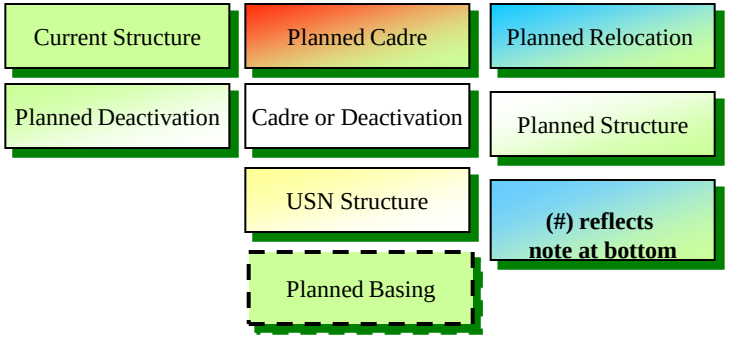
The 2011 AvPlan supports the force structure initiatives approved under the Marine Aviation Transition Strategy (MATS); 202K Grow the Force initiative; and, with the exception of a few small challenges, the anticipated requirements resulting from the implementation of the Defense Posture Review Initiative (DPRI). DPRI is the series of sustained security consultations between the U.S. and the government of Japan which resulted in several Agreed Implementation Plans (AIPs). These plans deal with restructuring / rebasing of forces in the Pacific. The combination of these initiatives will continue to shape the future of Marine Corps aviation as adjustments are made to meet the diverse missions of today's and tomorrow's battlefields. The AvPlan provides a systematic method to introduce new aircraft and improved capabilities, and to shape the future organization of Marine Corps aviation, all while maintaining our current capability as our nation's force in readiness. This plan sets in place tomorrow's Marine aviation as a viable and essential component in support of the MAGTF on the battlefield.

The Marine Corps Aviation Plan is designed to improve the posture of Marine Corps aviation in the near term (FY2010-2012); the mid-term (FY2013-2015) and the long term (FY2016-2025).

Way Ahead:
During the next decade, Marine aviation will transition from thirteen to six type/model/series manned aircraft, with a peak of eighteen overlapping type/model/series in service at one time. These are manpower- and training-intensive transitions which will take units temporarily out of the operating force.

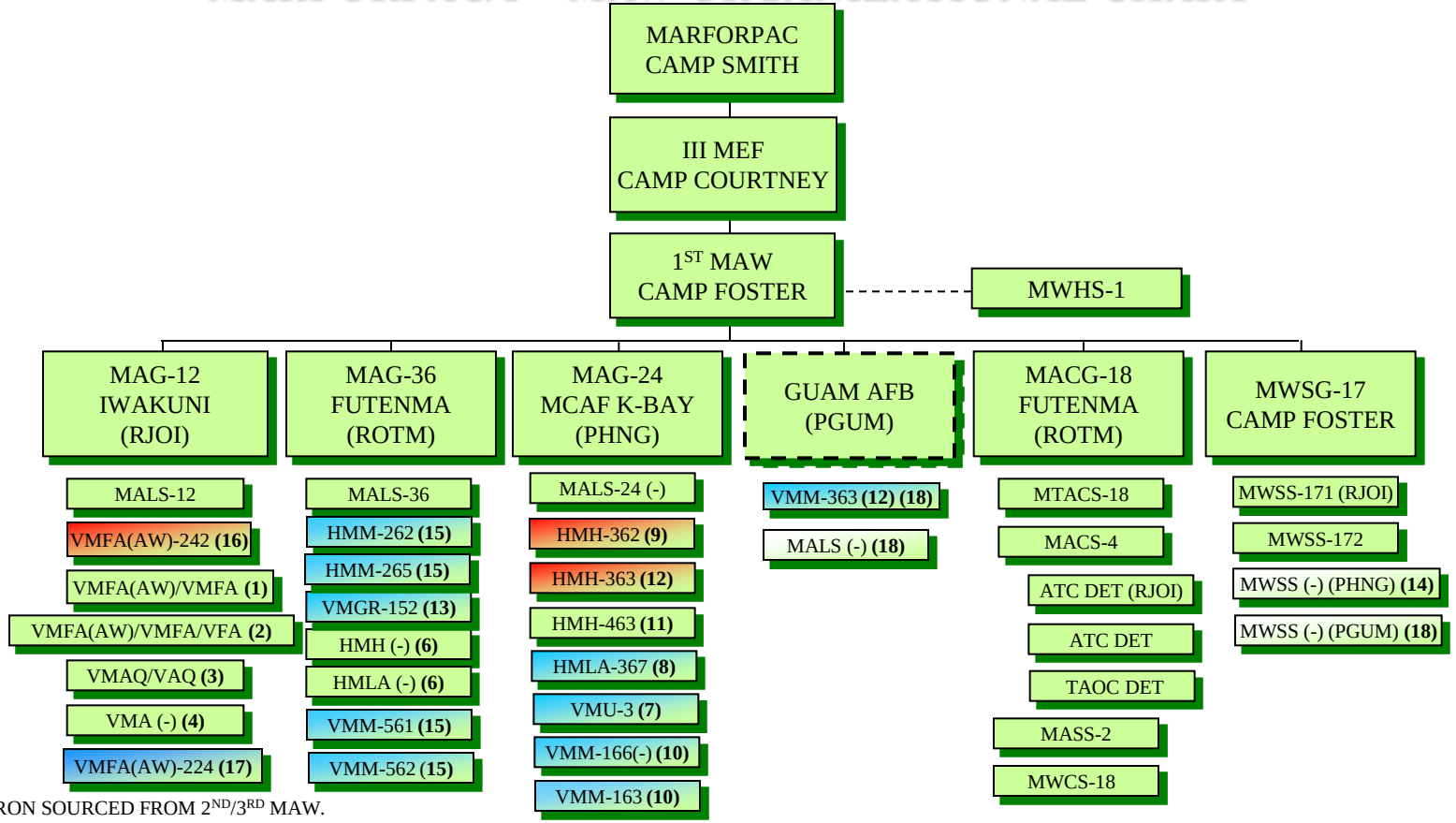
The 2011 AvPlan delineates the latest plans for these transitioning aviation platforms and programs, and Marine aviation continues to work with the MarFors, MEFs and Wings to optimize these transitions and minimize impact to the operating forces.

Pages 1-3 through 1-10 are Marine aviation organizational charts that show planned changes in structure and basing between 2010 and 2020.



Color-code and numbering convention used in the organizational charts

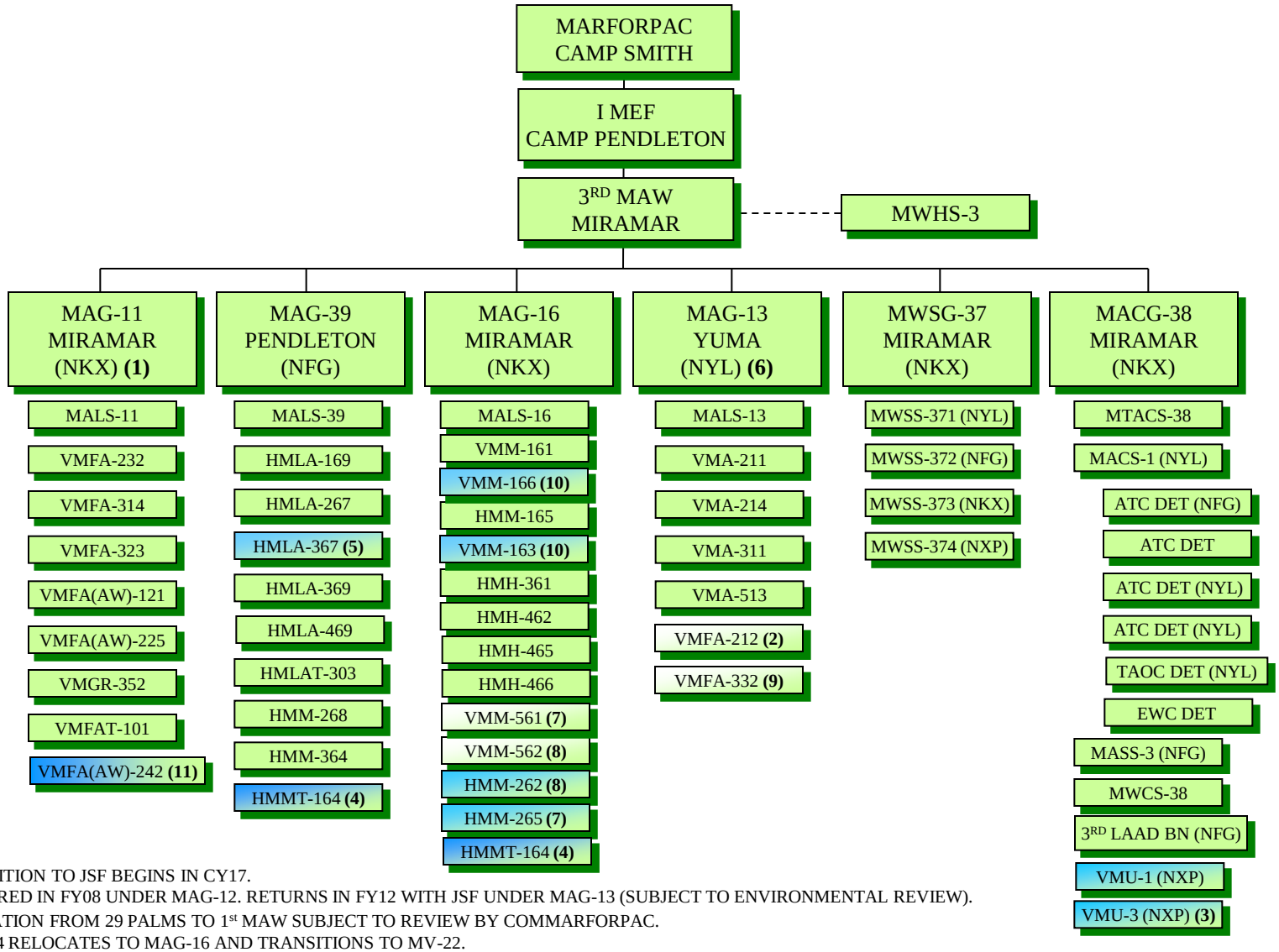
MARFORPAC/1ST MAW ORGANIZATIONAL CHART



NOTES:

1) UDP SQUADRON SOURCED FROM 2ND/3RD MAW.
2) UDP SQUADRON SOURCED FROM 2ND/3RD MAW OR STRIKE FIGHTER WING PACIFIC.
3) UDP SQUADRON SOURCED THROUGH GFMP (USMC/USN SQUADRON).
4) UDP SQUADRON (-) ISO 31ST MEU SOURCED FROM 2ND/3RD MAW.
6) SQUADRON DETACHMENT TYPICALLY SOURCED FROM 3RD MAW, BUT 2ND MAW CAN ALSO SOURCE.
7) VMU-3 RELOCATION FROM 29 PALMS TO 1st MAW SUBJECT TO REVIEW BY COMMARFORPAC.
8) HMLA RELOCATION FROM CAMP PENDLETON IN FY13 SUBJECT TO MCAF KANEOHE BAY MASTER BASING PLAN AND ENVIRONMENTAL REVIEW.
9) HMH-362 ZERO-STAFFED IN FY13 AWAITING CH-53K TRANSITION. RETURNS TO TRANSITION TO CH-53K IN FY18 ON THE EAST COAST.
10) VMM-166(-) AND VMM-163 RELOCATION TO K-BAY FY14 & FY15, RESPECTIVELY, DEPENDENT ON MCAF KANEOHE BAY MASTER BASING PLAN AND SUBJECT TO ENVIRONMENTAL REVIEW.
11) HMH-463 TRANSITIONS FROM CH-53D TO CH-53E DURING FY12 AND WILL BE THE LAST CH-53E SQUADRON TO TRANSITION TO CH-53K.
12) HMH-363 CADRES IN FY12 AND TRANSITIONS TO VMM. VMM-363 WILL HAVE THE CAPACITY TO ACT AS THE HQ FOR A COMPOSITE SQUADRON REPORTING TO MAG-24.
13) VMGR-152 IS SCHEDULED TO RELOCATE FROM FUTENMA TO IWAKUNI IN Q2 FY13. RELOCATION IS SUBJECT TO THE COMPLETION OF THE CONDITIONS IDENTIFIED IN THE AGREED IMPLEMENTATION PLAN (AIP) BETWEEN THE US GOVERNMENT AND THE GOVERNMENT OF JAPAN.
14) MARINE WING SUPPORT SQUADRON (-) PARTIALLY ACHIEVED THROUGH FY08 UNCOMPENSATED REVIEW BOARD; STANDS UP IN FY12 MWSG-17 ISO MAG-24.
15) VMM-561 AND VMM-562 WILL REPLACE HMM-265 AND HMM-262 IN FY13 AND FY14 RESPECTIVELY, SUBJECT TO ENVIRONMENTAL REVIEW. HMM-265 AND HMM-262 WILL RELOCATE TO MAG-16.
16) VMFA(AW)-242 WILL RELOCATE AND ASSIGN TO MAG-11 AT MCAS MIRAMAR IN FY18. VMFA(AW)-242 WILL SUBSEQUENTLY TRANSITION TO F-35B IN FY18.
17) VMFA(AW)-224 WILL TRANSITION TO F-35B WHILE ATTACHED TO MAG-31 IN FY14. SQUADRON WILL THEN REASSIGN TO MAG-12 AT MCAS IWAKUNI IN FY17.
18) TRANSITION AND MOVE DATE TO GUAM TBD DEPENDENT ON PROGRESS OF AGREED IMPLEMENTATION PLAN (AIP) AND SUBJECT TO ENVIRONMENTAL REVIEW

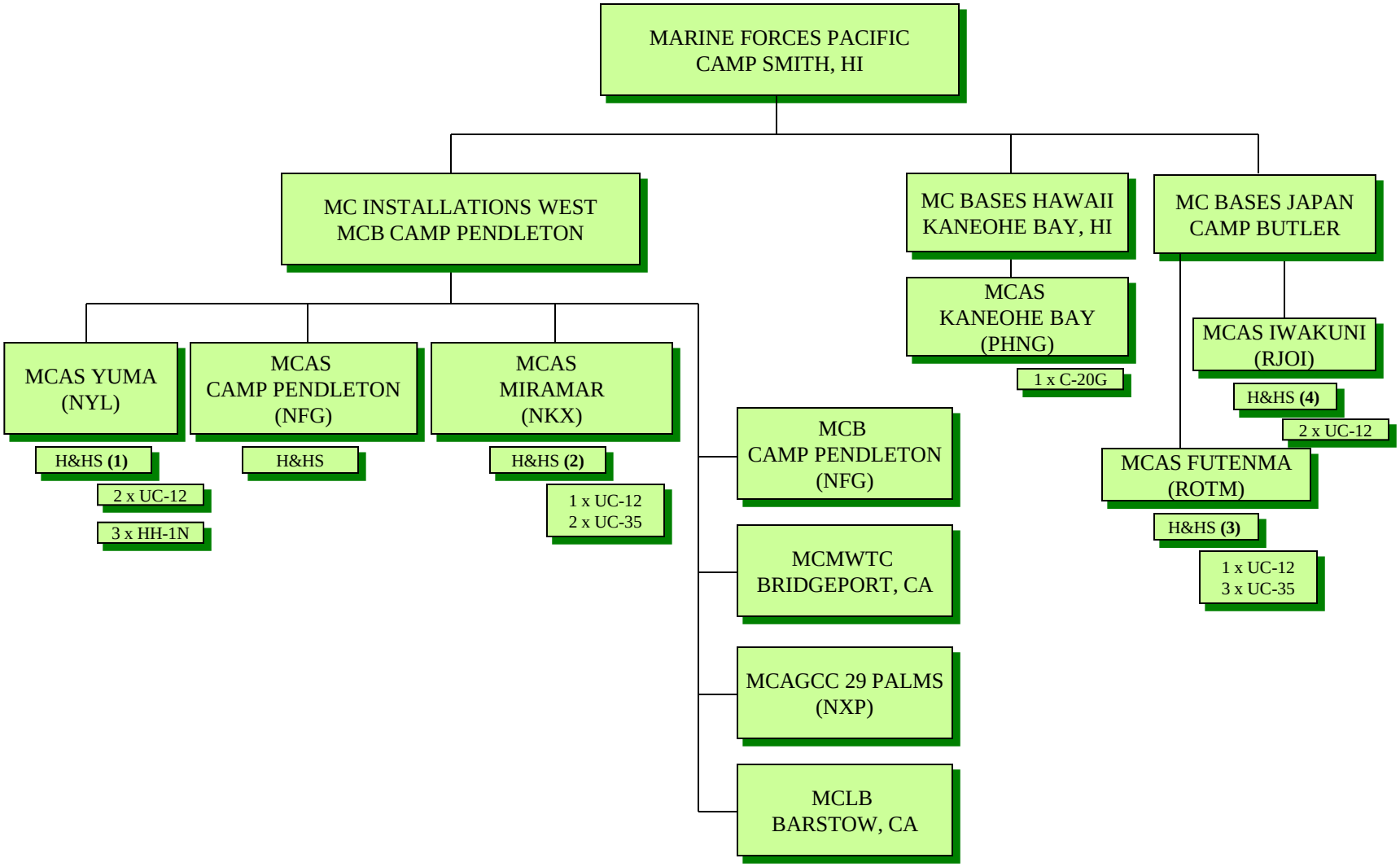
MARFORPAC/3RD MAW ORGANIZATIONAL CHART



NOTES:

1) MAG-11 TRANSITION TO JSF BEGINS IN CY17.
2) VMFA-212 CADRED IN FY08 UNDER MAG-12. RETURNS IN FY12 WITH JSF UNDER MAG-13 (SUBJECT TO ENVIRONMENTAL REVIEW).
3) VMU-3 RELOCATION FROM 29 PALMS TO 1st MAW SUBJECT TO REVIEW BY COMMARFORPAC.
4) FY14 HMMT-164 RELOCATES TO MAG-16 AND TRANSITIONS TO MV-22.
5) HMLA-367 RELOCATION TO HAWAII IN FY13 DEPENDENT ON MCAF KANEOHE BAY MASTER BASING PLAN AND SUBJECT TO ENVIRONMENTAL REVIEW.
6) MAG-13 WILL BE JSF TRANSITION COMPLETE WITH FIVE VMFA SQUADRONS IN FY19 (WILL GIVE UP ONE SQUADRON AT TIME TBD).
7) VMM-561 STANDS UP IN FY11 AND RELOCATES TO 1st MAW IN FY13 TO REPLACE HMM-265, WHICH RELOCATES TO MAG-16.
8) VMM-562 STANDS UP IN FY12 AND RELOCATES TO 1ST MAW IN FY14 TO REPLACE HMM-262 WHICH RELOCATES TO MAG-16.
9) VMFA-332 CADRED IN FY07 UNDER MAG-31. RETURNS IN FY11 WITH JSF UNDER MAG-13 (SUBJECT TO ENVIRONMENTAL REVIEW).
10) VMM-166 (-) AND VMM-163 RELOCATION TO HAWAII IN FY14 & FY15, RESPECTIVELY, DEPENDENT ON MCAF KANEOHE BAY MASTER BASING PLAN AND SUBJECT TO ENVIRONMENTAL REVIEW.
11) VMFA(AW)-242 WILL RELOCATE TO MCAS MIRAMAR FROM IWAKUNI AND ASSIGN TO MAG-11 IN FY18. SQUADRON WILL THEN TRANSITION TO F-35B IN FY18.

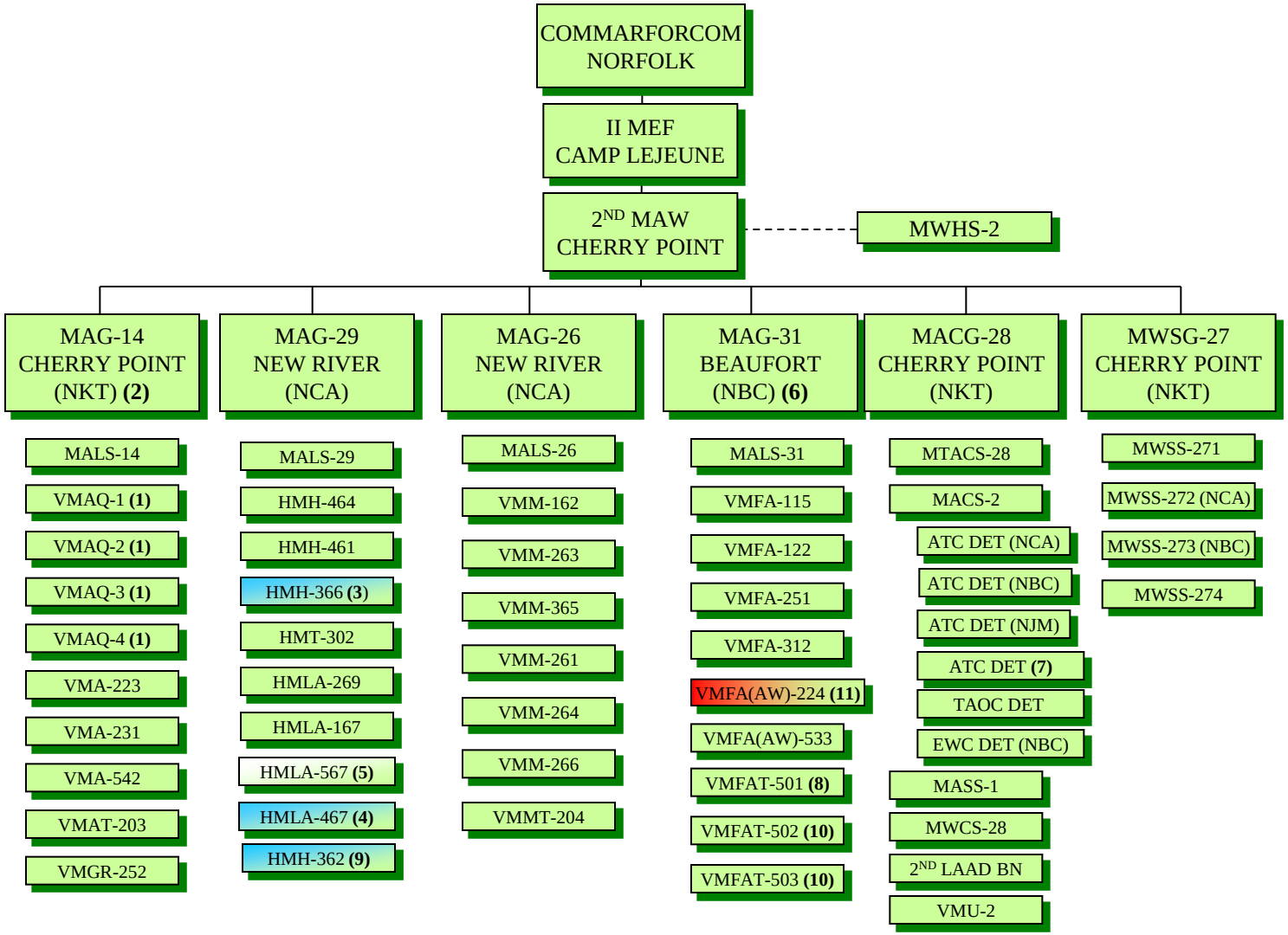
MARINE CORPS BASES PACIFIC ORGANIZATIONAL CHART



NOTES:

1) H&HS MCAS YUMA TRANSITION TO UC-12F AIRCRAFT IN CY 2011. HH-1N ARE SAR AIRCRAFT, AND WILL BE TRANSITIONED TO THE UH-1Y IN FY14.
2) H&HS MCAS MIRAMAR TRANSITION FROM 1 X UC-12F TO 1 X UC-12W OCTOBER 2010-NOT EQUIPPED WITH EXTENDED RANGE TANKS.
3) H&HS MCAS FUTENMA TRANSITION TO 1 X UC-12W EQUIPPED WITH EXTENDED RANGE TANKS JANUARY 2011.
4) H&HS MCAS IWAKUNI TRANSITION TO 1 X UC-12W NOT EQUIPPED WITH EXTENDED RANGE TANKS SEPTEMBER 2010, AND 1 X UC-12W EQUIPPED WITH EXTENDED RANGE TANKS DECEMBER 2010.

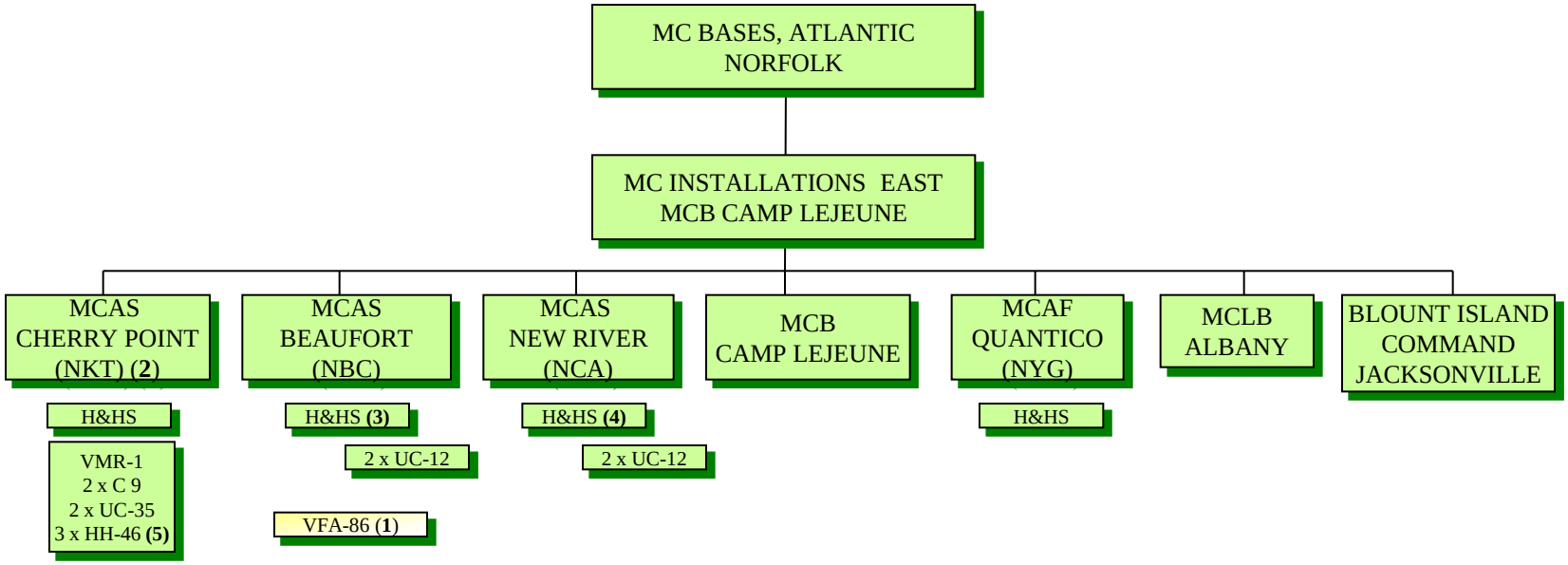
MARFORCOM/2ND MAW ORGANIZATIONAL CHART



NOTES

1) CURRENT SUNDOWN PLAN BEGINS AT THE END OF FY16 AND RESULTS IN ONE VMAQ SQUADRON IN SERVICE FY19.
2) IN FY19 ONE VMA WILL BE TRANSITIONING TO F-35 AND TWO VMA'S REMAIN OPERATIONAL.
3) HMH-366 TEMPORARILY BASED IN CHERRY POINT AND MOVES TO NEW RIVER IN FY14.
4) HMLA-467 TEMPORARILY BASED IN CHERRY POINT AND MOVES TO NEW RIVER IN FY13.
5) IAW 202K EXPANSION, HMLA-567 (THE 9TH AC HMLA) STANDS UP FY11 AT CHERRY POINT AND MOVES TO NEW RIVER IN FY13.
6) CURRENT JSF TRANSITION PLAN RESULTS IN THREE JSF SQDNS WITHIN MAG-31 IN FY19.
7) IAW 202K EXPANSION, MACS-2 ATC DET DELTA STOOD UP FY10 AT CHERRY POINT.
8) VMFAT-501 (F-35B FLEET REPLACEMENT SQUADRON) STOOD UP AT EGLIN AFB IN FY10.
9) HMH-362 STANDS UP IN FY18 ON THE EAST COAST TO BE THE FIRST SQUADRON TO TRANSITION TO CH-53K.
10) SUBJECT TO ENVIRONMENTAL REVIEW.
11) VMFA(AW)-224 WILL TRANSITION TO F-35B UNDER MAG-31 IN FY14. THE SQUDRON WILL THEN RELOCATE IN FY17 TO MCAS IWAKUNI AND BE REASSIGNED TO MAG-12.

MARINE CORPS BASES ATLANTIC ORGANIZATIONAL CHART

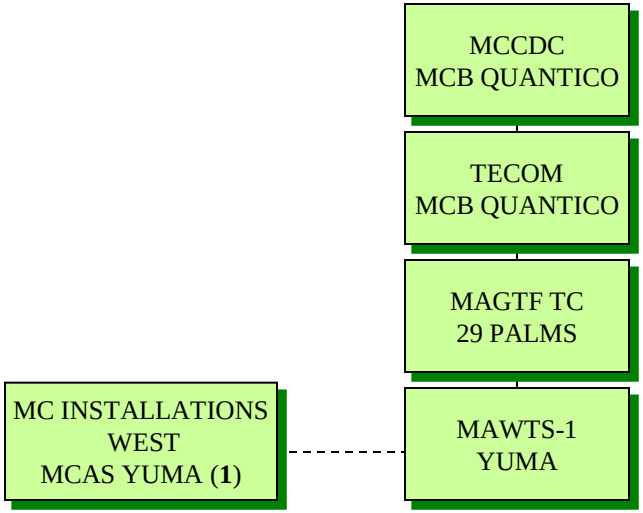


NOTES

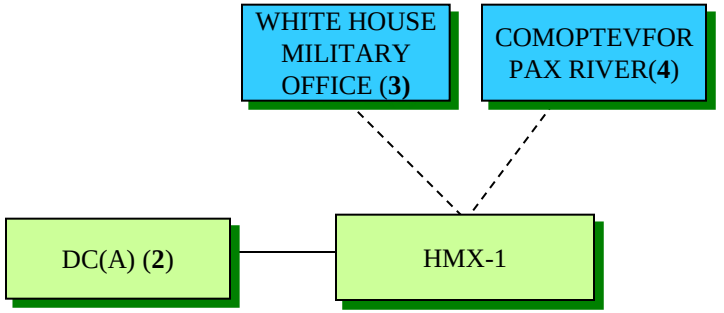
1) USN FA-18C SQUADRON STATIONED AT MCAS BEAUFORT IS INDEPENDENT OF 2ND MAW.
2) VMR-1 IS AN ACTIVE DUTY SQUADRON ASSIGNED TO MCI EAST STATIONED AT KNKT.
3) H&HS MCAS BEAUFORT 2 X UC-12B.
4) H&HS MCAS NEW RIVER TRANSITION FROM UC-12B TO UC-12F CALENDAR YEAR 2011.
5) H&HS MCAS CHERRY POINT SAR TRANSITION FROM HH-46 TO UH-1Y IN CALENDAR YEAR 2017

AVIATION-UNIQUE ORGANIZATIONAL CHARTS

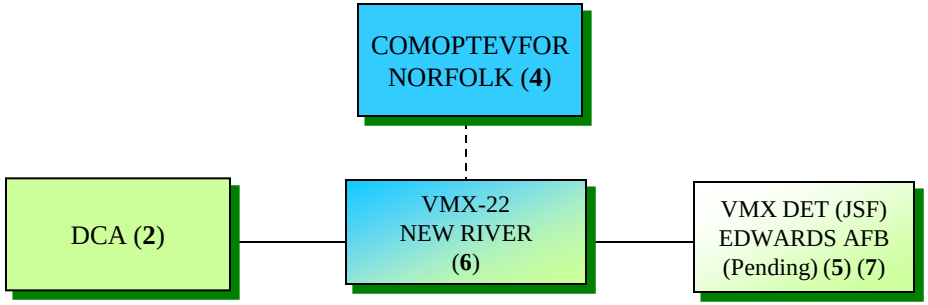
MARINE AVIATION WEAPONS AND TACTICS SQUADRON ONE



MARINE HELICOPTER SQUADRON ONE

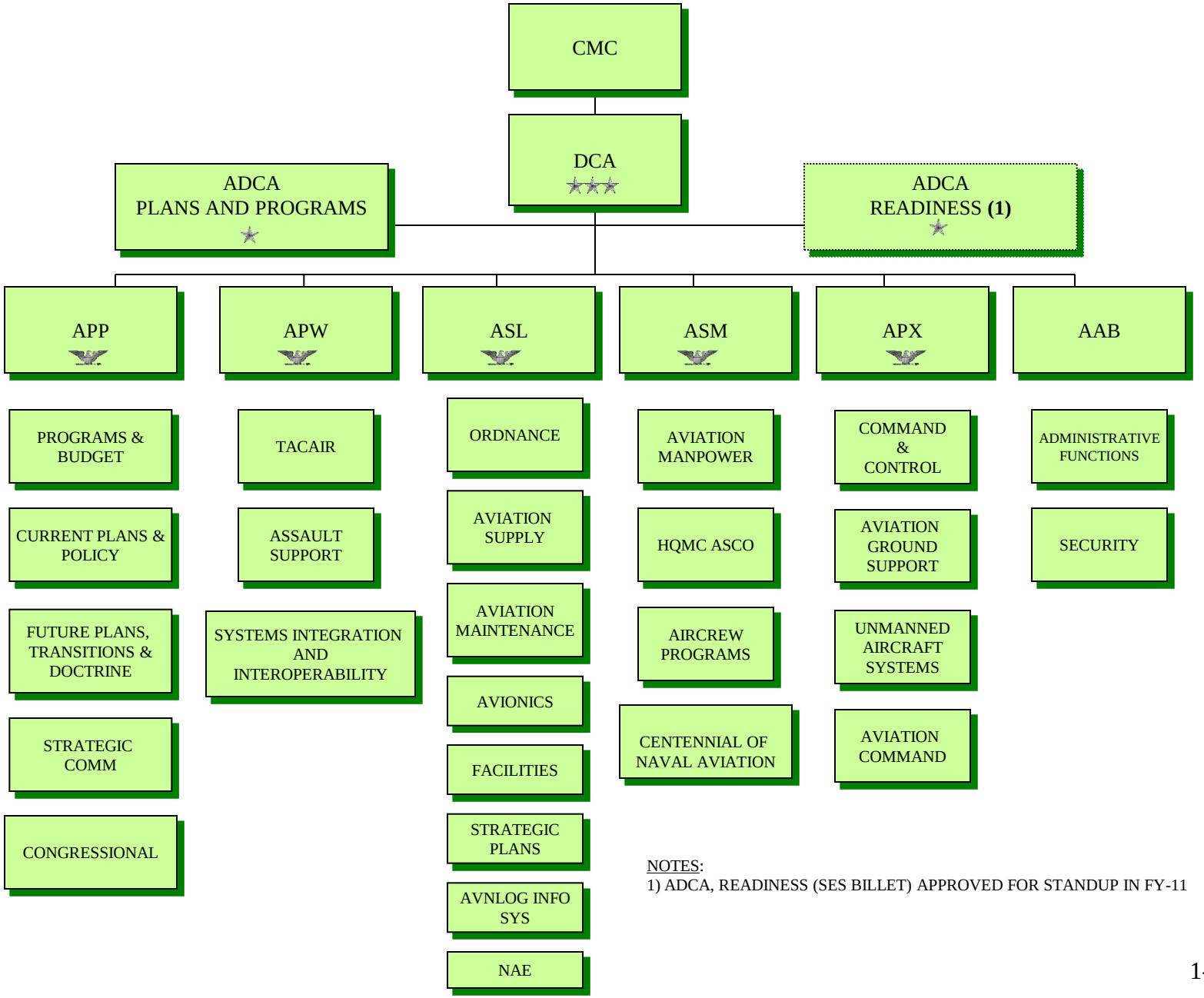


MARINE TILTROTOR TEST AND EVALUATION SQUADRON TWENTY-TWO



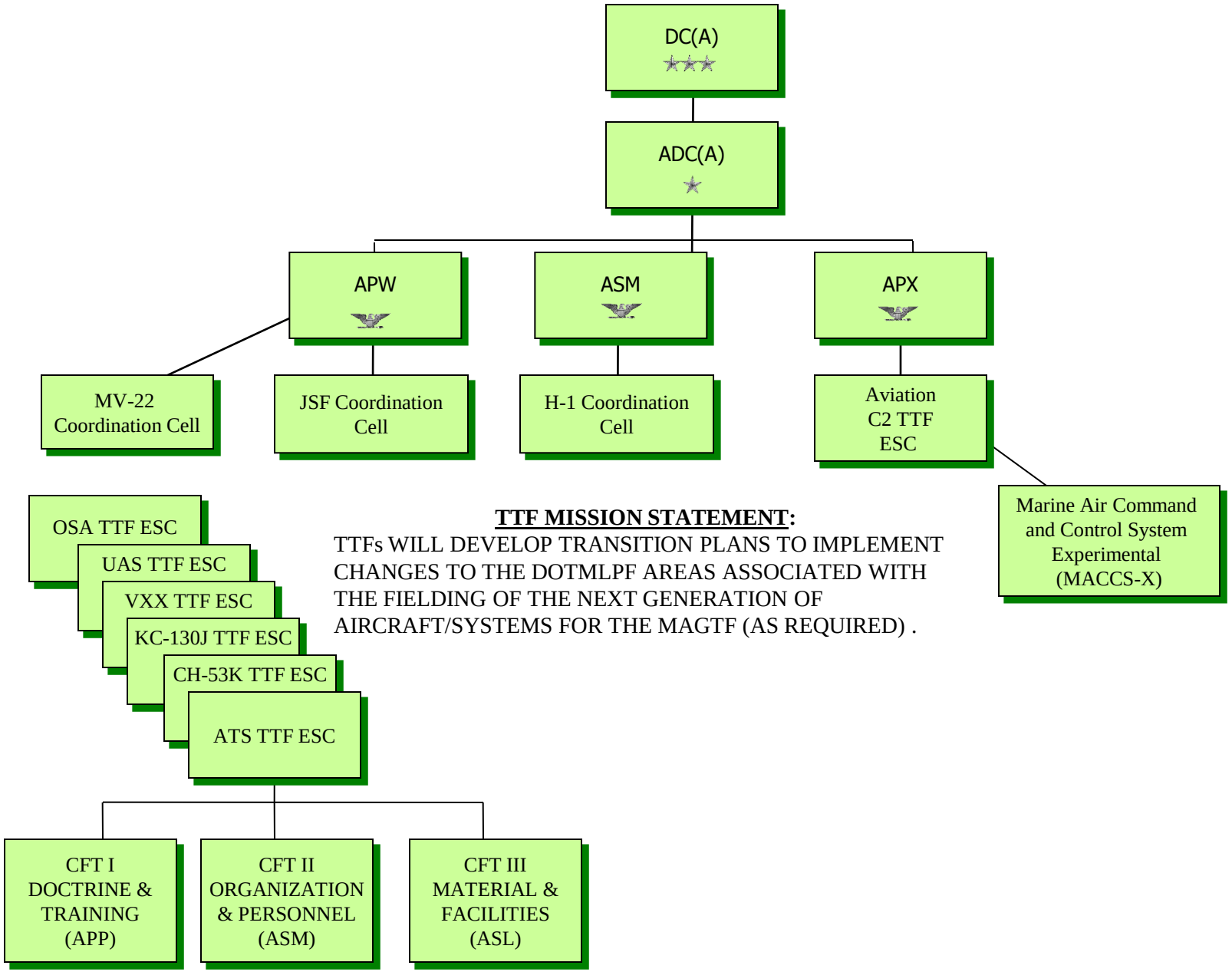
NOTES:
1) FISCAL/COMPTROLLER SUPPORT.
2) ADCON.
3) OPCON FOR PRESIDENTIAL MISSIONS.
4) OPCON FOR OPERATIONAL TEST MISSIONS.
5) VMX-22 DETACHMENT (JSF) STANDUP JANUARY 2012.
6) VMX-22 TO RE-LOCATE TO MCAS YUMA IN 2015.
7) VMX DET (JSF) RE-LOCATES TO MCAS YUMA AT COMPLETION OF JSF SYSTEM DESIGN AND DEVELOPMENT (SDD) IN 2015 (EST).

HEADQUARTERS MARINE CORPS AVIATION ORGANIZATIONAL CHART



NOTES:
1) ADCA, READINESS (SES BILLET) APPROVED FOR STANDUP IN FY-11

MARINE AVIATION TRANSITION TASK FORCE (TTF) ORGANIZATIONAL CHART



TTF MISSION STATEMENT:

TTFs WILL DEVELOP TRANSITION PLANS TO IMPLEMENT CHANGES TO THE DOTMLPF AREAS ASSOCIATED WITH THE FIELDING OF THE NEXT GENERATION OF AIRCRAFT/SYSTEMS FOR THE MAGTF (AS REQUIRED) .

Section 2 --- Marine Rotary Wing/Tiltrotor Aviation Plan

Marine Rotary Wing/Tiltrotor Aviation Plan

Missions

MARINE MEDIUM HELICOPTER SQUADRON (HMM): Support the MAGTF commander by providing assault support transport of combat troops, supplies and equipment, day or night under all weather conditions during expeditionary, joint or combined operations.

MARINE MEDIUM HELICOPTER TRAINING SQUADRON (HMMT): Conduct combat capable assault support medium lift helicopter training for selected aircrews in the CH-46E aircraft and provide technical training for aviation maintenance personnel.

MARINE MEDIUM TILTROTOR SQUADRON (VMM): Support the MAGTF commander by providing assault support transport of combat troops, supplies and equipment, day or night under all weather conditions during expeditionary, joint or combined operations.

MARINE MEDIUM TILTROTOR TRAINING SQUADRON (VMMT) Conduct combat capable assault support tiltrotor training for selected aircrew in the MV-22B and provide technical training for aviation maintenance personnel.

MARINE HEAVY HELICOPTER SQUADRON (HMH): Support the MAGTF commander by providing assault support transport of heavy weapons, equipment and supplies, day or night under all weather conditions during expeditionary, joint or combined operations.

MARINE HEAVY HELICOPTER TRAINING SQUADRON (HMHT): Conduct combat capable assault support heavy lift helicopter training for selected aircrews in the CH-53E aircraft, with further transition to the D model provided after graduation, and provide technical training for aviation maintenance personnel.

MARINE LIGHT ATTACK HELICOPTER SQUADRON (HMLA): Support the MAGTF commander by providing offensive air support, utility support, armed escort and airborne supporting arms coordination, day or night under all weather conditions during expeditionary, joint or combined operations.

MARINE LIGHT ATTACK HELICOPTER TRAINING SQUADRON (HMLAT) : Conduct combat capable attack training for selected aircrews in the UH-1N, UH-1Y, AH-1W and AH-1Z aircraft, and provide technical training for aviation maintenance personnel.

New Aircraft Test and Evaluation Updates

MV-22:

DEVELOPMENTAL TEST: Ongoing DT efforts include those for fleet sustainment, new capabilities, and envelope expansion for high altitude and defensive maneuvering.

MV-22 OPERATIONAL TEST AND EVALUATION: COA development underway to determine primary location for VMX-22 after FY11. Continued integrated test for high altitude tactics, techniques and procedures (TTP), Interim Defensive Weapon System (IDWS) integration and shipboard interoperability.

VXX:

The VH-71 program was terminated and the VXX program was started in FY10. The VXX program entered the JCIDS process with the Initial Capabilities Document (ICD) approved in FY09. The program is currently in the Analysis of Alternatives phase and a Draft Capabilities Development Document (CDD) is being produced to support a Milestone 'A' decision in FY11.

UH-1Y:

DEVELOPMENTAL TEST: Complete.

OPERATIONAL TEST/OPEVAL: Complete.

INITIAL OPERATIONAL CAPABILITY: Was achieved on 8 August 2008 when HMLA-267 received a three- aircraft UH-1Y detachment. First deployment was with 13th MEU in January 2009. Second deployment with full complement of UH-1Y completed in May 2010 with HMLA-367 supporting International Security Assistance Forces – Afghanistan.

AH-1Z:

DEVELOPMENTAL TEST: Complete.

OPERATIONAL TEST/OPEVAL: OT IIC3 testing in support of the Initial Operational Capability Decision completed on 30 June 2010.

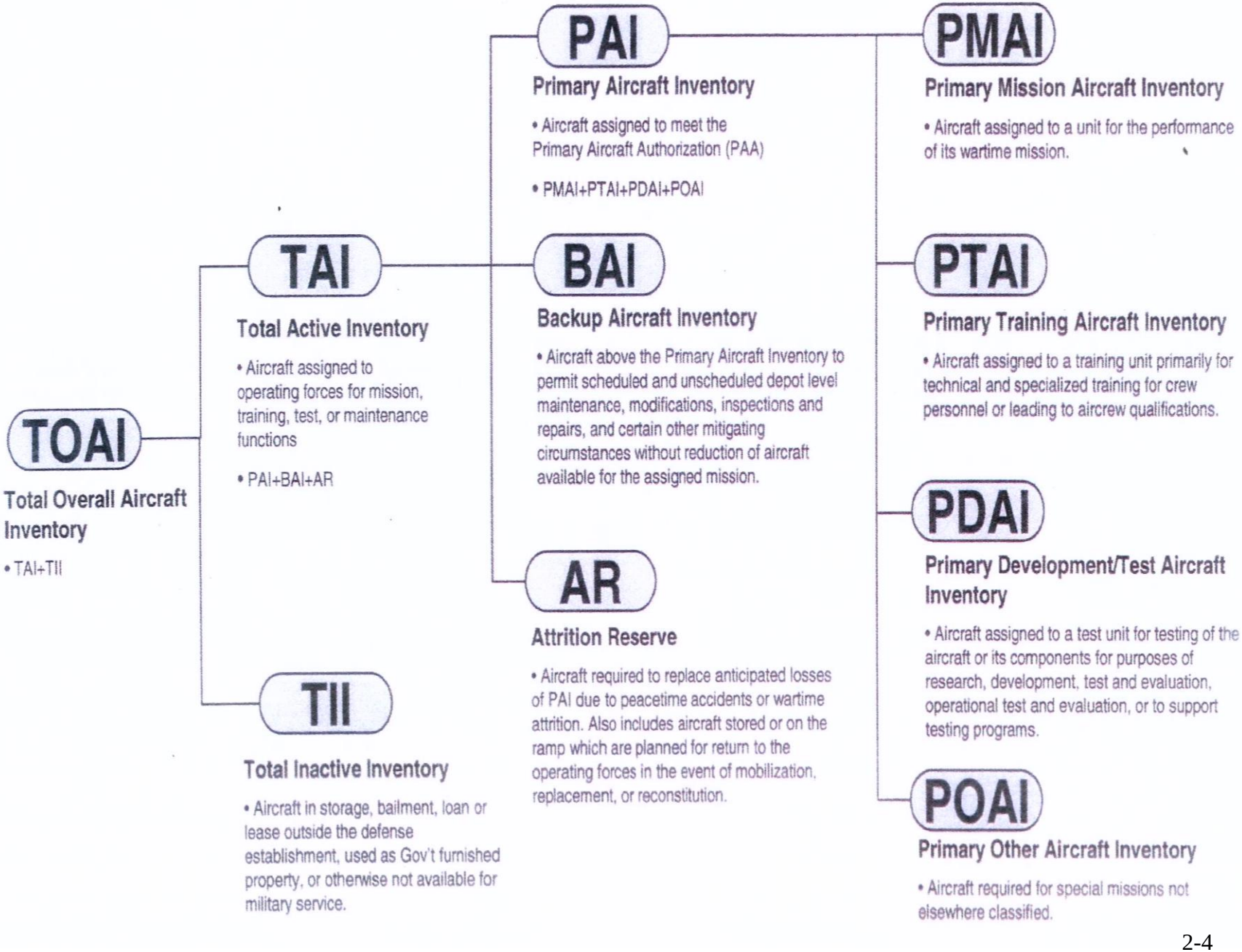
INITIAL OPERATIONAL CAPABILITY: Will be achieved during 1st quarter FY11 when HMLA-367 receives a six-aircraft AH-1Z detachment with required support equipment, technical publications, trained maintenance personnel and trained aircrew, to include initial spares with interim repair support in place and is capable of deploying for operational commitments.

Marine Rotary Wing/Tiltrotor Aviation Plan Continued…

New Aircraft Test and Evaluation Updates Continued…

CH-53K:
DEVELOPMENTAL TEST: 1st Qtr FY13 to 3rd Qtr FY16
OPERATIONAL TEST/OPEVAL: OT-B1 testing in support of Milestone C Decision begins 2nd Qtr FY14. OT-C testing in support of Initial Operational Capability (IOC) / Full Rate Production (FRP) begins 1st Qtr FY17.
INITIAL OPERATIONAL CAPABILITY: Will be achieved 3rd Qtr FY18 when the first HMH receives a four-aircraft CH-53K detachment with required support equipment, technical publications, trained maintenance personnel and trained aircrew, to include initial spares with interim repair support in place and is capable of deploying for operational commitments.

Inventory Terminology and Breakdown



MARINE MEDIUM HELICOPTER/TILTROTOR (HMM/VMM) PLAN

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
TOTAL SQUADRONS-UNIT PMAI (OR PTAI)											
AC CH-46E	6-12	5-12	4-12	3-12	2-12	0-0	0-0	0-0	0-0	0-0	0-0
AC MV-22	8-12	10-12	12-12	13-12	15-12	17-12	18-12	18-12	18-12	18-12	18-12
RC CH-46E	2-12	2-12	2-12	1-12	1-12	1-12	0-0	0-0	0-0	0-0	0-0
RC MV-22	0-0	0-0	0-0	1-12	1-12	1-12	2-12	4-12	4-12	4-12	4-12
CH-46E FRS	1-18	1-12	1-12	1-12	0-0	0-0	0-0	0-0	0-0	0-0	0-0
MV-22A FRS	1-20	1-20	1-20	1-20	1-20	1-20	1-20	1-20	1-20	1-20	1-20

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
PAI PLAN											
AC/RC PMAI											
CH-46E	96	84	72	48	36	12	0	0	0	0	0
MV-22B	96	120	144	168	192	216	240	264	264	264	264
TOTAL PMAI	**192**	**204**	**216**	**216**	**228**	**228**	**240**	**264**	**264**	**264**	**264**
FRS PTAI											
CH-46E	18	12	12	12	0	0	0	0	0	0	0
MV-22B	20	20	20	20	20	20	20	20	20	20	20
TOTAL FRS PTAI	**38**	**32**	**32**	**32**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
TOTAL PMAI/PTAI	**230**	**236**	**248**	**248**	**248**	**248**	**260**	**284**	**284**	**284**	**284**

Legend for all aircraft charts

AC: Active component
RC: Reserve component
FRS: Fleet Replacement Squadron

Numbers are presented with total squadrons first, followed by number of aircraft in each squadron. For example, "6-12" means six squadrons of twelve aircraft apiece.

Thus, in the chart above, "RC CH-46E PMAI FY11 2-12" means that the reserve component of Marine aviation in fiscal year 2011 will have, per its aircraft assigned for its wartime mission, two squadrons with twelve CH-46E aircraft apiece.

FRS aircraft are training assets, and are categorized as PTAI, while operational squadron aircraft are categorized as PMAI per the chart on preceding page.

MV-22 Transition Timeline

CURRENT FORCE:
6 VMM SQUADRONS ESTABLISHED

2 VMM SQUADRONS IN TRANSITION

6 AC SQDN x 12 CH-46E
2 RC SQDN x 12 CH-46E
1 FRS x 12 CH-46E
1 FRS x 20 MV-22B

FORCE GOAL FY19:
18 AC VMM SQDN x 12 MV-22B
1 FRS SQDN x 20 MV-22B
4 RC VMM SQDN x 12 MV-22B

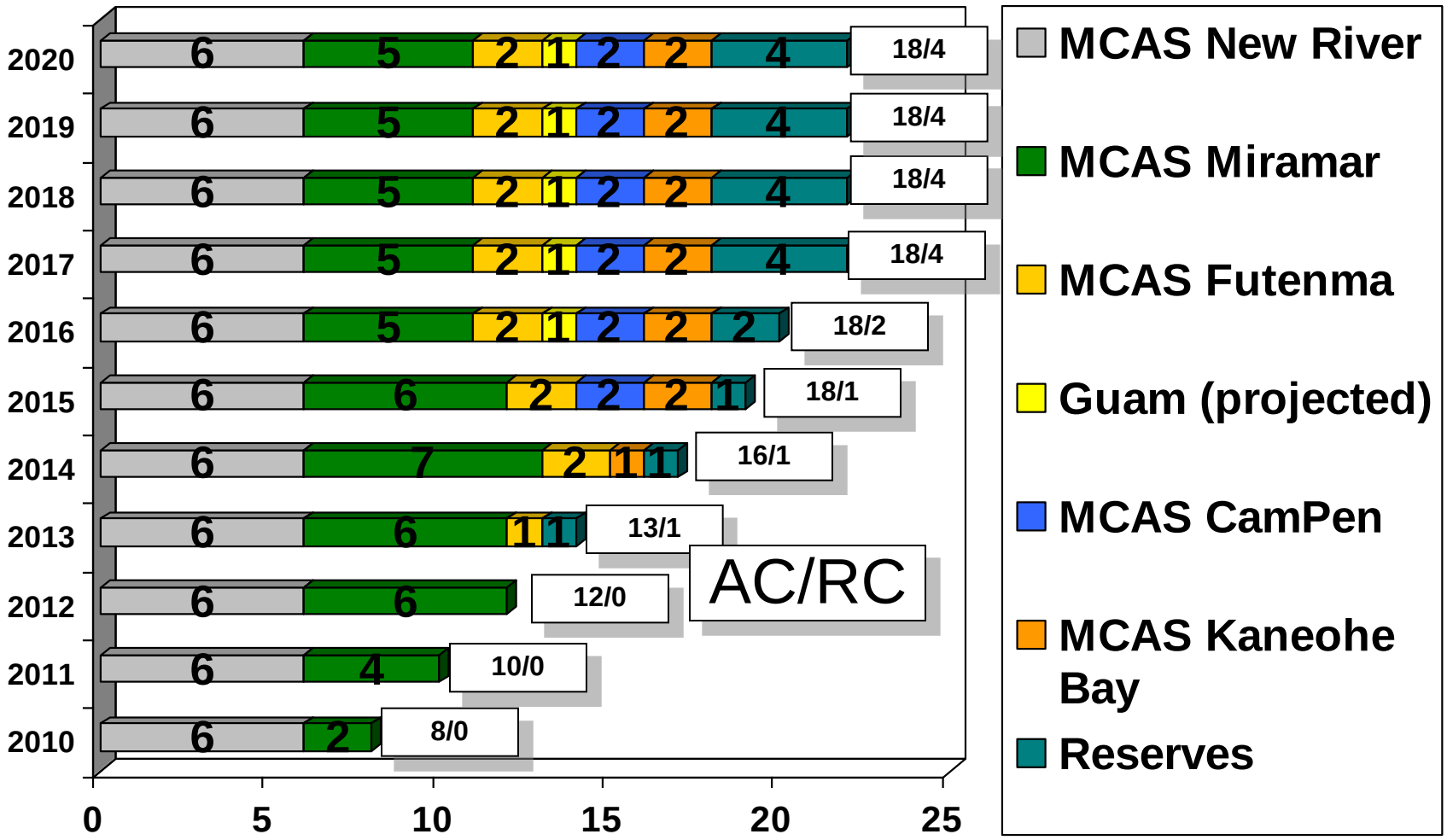
		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	PMAI																																												
MAG-26/29																																													
VMMT-204	20 MV-22																																												
VMM-263	12 MV-22																																												
VMM-162	12 MV-22																																												
VMM-266	12 MV-22																																												
VMM-261	12 MV-22																																												
VMM-365	12 MV-22	V																																											
VMM-264	12 MV-22		V																																										
MAG-16																																													
VMM-161	12 MV-22	M				V																																						
VMM-166	12 MV-22		M			V																RELOCATE TO MAG 24																							
VMM-561 (1)						M				V				RELOCATE TO MAG 36																																
HMM-165	12 CH-46E			M			V																																						
VMM-562 (1)						M				V				RELOCATE TO MAG 36																																
HMM-163	12 CH-46E						M			V				RELOCATE TO MAG 24																																
HMM-265	12 CH-46E									M				V																																
HMM-262	12 CH-46E													M				V																												
HMMT-164 (3)																		M				V																								
MAG-36																																													
HMM-265 (2)	12 CH-46E													M				V																												
HMM-262 (2)	12 CH-46E																	M				V																								
VMM-561																																													
VMM-562																																													
MAG-39																																													
HMMT-164 (3)	18 CH-46E																			M				V																						
HMM-364	12 CH-46E																					M				V																			
HMM-268	12 CH-46E																						M				V																		
MAG-24																																													
VMM-166	12 MV-22																																												
VMM-163	12 MV-22																																												
GUAM																																													
VMM-363 (4)																										TRANSITION AND RELOCATE TBD																				
WHMO																																													
HMX-1	14 CH-46E														M			V																												
RESERVES																																													
HMM-764 (5)	12 CH-46E														M			V																												
HMM-774	12 CH-46E																										M			V															
VMM																														M				V											
VMM																															M			V											

M - MV-22 TRANSITION BEGINS
V - MV-22 SQUADRON CORE COMPETENT/ENTERS PTP PHASE

1) VMM-561/VMM-562 – SQUADRON BASED ON USMC END-STRENGTH INCREASE. MOVES TO 1ST MAW FY13 AND FY14 RESPECTIVELY.
2) HMM-265 TO RELOCATE TO CONUS IN FY13 TO EXECUTE TRANSITION. HMM-262 TO MOVE TO CONUS IN FY14 TO EXECUTE TRANSITION.
3) HMMT-164 RELOCATES TO MAG-16 AND TRANSITIONS TO MV-22.
4) HMH-363 WILL CADRE AS AN HMH IN FY12 AND PREPARE FOR TRANSITION TO VMM. TRANSITION AND MOVE DATE TO GUAM TBD BASED ON MILCON COMPLETION.
5) HMM-764 TRANSITIONS BEGINNING IN FY13 WITH MOVE TO MCAS MIRAMAR.

****Basing plans are subject to change and further environmental review****

MV-22 SQUADRON GEO-LOCATION



****Basing plans are subject to change and further environmental review****

MARINE HEAVY HELICOPTER (HMH) PLAN

		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
TOTAL SQUADRONS/UNIT PMAI												
AC	CH-53E	7/16	7/16	8/16	8/16	8/16	8/16	8/16	8/16	8/16	8/16	8/16
AC	CH-53D	3/10	3/10	2/10	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
AC	CH-53K	0	0	0	0	0	0	0	0	1/4	1/16	2/16
RC	CH-53E	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8	DET - 8

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
PAI PLAN											
AC/RC PMAI											
CH-53D	30	30	20	0	0	0	0	0	0	0	0
CH-53E	120	120	136	136	136	136	136	136	136	136	136
CH-53K	0	0	0	0	0	0	0	0	4	16	32
TOTAL AC/RC TACTICAL	**150**	**150**	**136**	**136**	**136**	**136**	**136**	**136**	**140**	**152**	**168**
FRS PTAI											
CH-53D	0	0	0	0	0	0	0	0	0	0	0
CH-53E	17	17	17	17	17	17	17	17	17	17	17
CH-53K	0	0	0	0	0	0	0	0	2	6	9
TOTAL FRS PTAI	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**19**	**23**	**26**
PDAI											
CH-53D	1	1	0	0	0	0	0	0	0	0	0
CH-53E	3	3	2	2	2	2	2	2	2	2	2
CH-53K	0	0	0	4	4	4	4	4	6	2	2
TOTAL PDAI	**4**	**4**	**2**	**6**	**6**	**6**	**6**	**6**	**8**	**4**	**4**
POAI											
CH-53D	0	0	0	0	0	0	0	0	0	0	0
CH-53E	6	6	0	0	0	0	0	0	0	0	0
CH-53K	0	0	0	0	0	0	0	0	0	0	0
TOTAL POAI	**6**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL PAI	**177**	**177**	**155**	**159**	**159**	**159**	**159**	**159**	**167**	**179**	**198**

GENERAL NOTES:

1) IN FY12, 1 CH-53D SQUADRON (HMH-363) CADRE AND STANDS UP AS VMM-363 IN FY16.
2) IN FY12, 1 CH-53D SQUADRON (HMH-463) TRANSITIONS FROM CH-53D TO CH-53E.
3) IN FY13, 1 CH-53D SQUADRON (HMH-362) STANDS DOWN AS CH-53D SQUADRON TO AWAIT CH-53K TRANSITION.
4) IN FY18, 1 CH-53 SQUADRON (HMH-362) STANDS UP TO TRANSITION TO CH-53K.
5) ACTUAL AIRCRAFT INVENTORY IS LESS THAN PAI.
6) TOTAL PROGRAM BUY IS 200 CH-53K.

MARINE HEAVY HELICOPTER (HMH) PLAN

CURRENT FORCE:
7 AC SQDN X 16 CH-53E
3 AC SQDN X 10 CH-53D
1 RC SQDN X 8 CH-53E
1 FRS X 17 CH-53E

FORCE GOAL
9 AC SQDN X 16 CH-53K
1 FRS X 21 CH-53K
1 RC SQDN X 8 CH-53K

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	PMAI																																												
MAG 26/29																																													
HMT-302	17 CH-53E																															K						V							
HMH-366	16 CH-53E																																							K				V	
HMH-461	16 CH-53E																																										K	
HMH-464	16 CH-53E																																											
MAG 16																																												
HMH-361	16 CH-53E																																											
HMH-462	16 CH-53E																																											
HMH-465	16 CH-53E																																											
HMH-466	16 CH-53E																																											
MAG 24																																												
HMH-362 (1)	10 CH-53D													C																					K						V			
HMH-363 (2)	10 CH-53D											C														M				V													
HMH-463 (3)	10 CH-53D									E			V																															
MAG 49																																												
HMH-772 (4)	8 CH-53E																																											

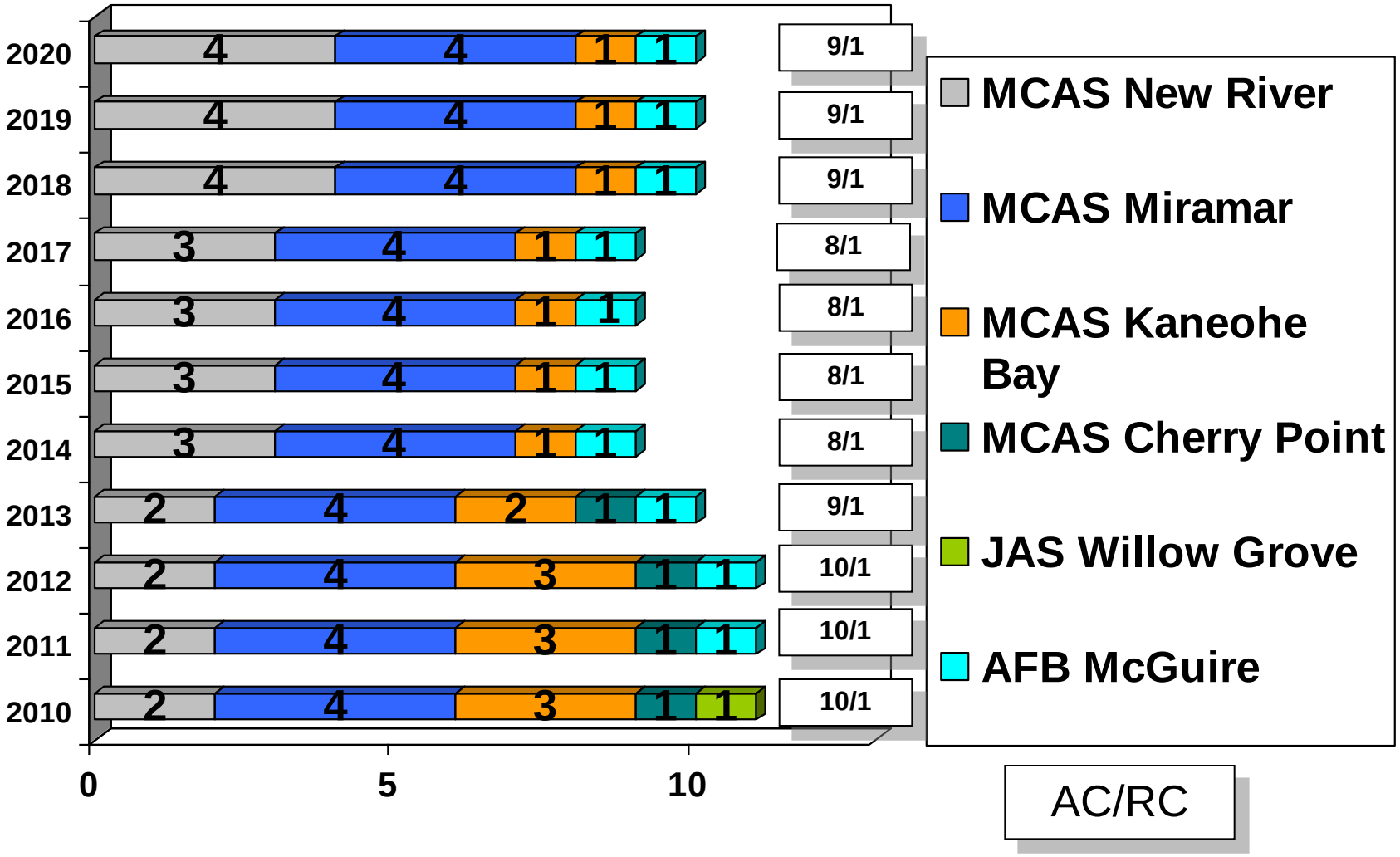
A = ACTIVATE
C = CADRE SQUADRON
E = ENTERS CH-53E TRANSITION
K = ENTERS CH-53K TRANSITION
M = ENTERS MV-22 TRANSITION
R = SQUADRON RELOCATION
V = TRANSITION COMPLETE

SPECIFIC NOTE:

1) SQUADRON CADRE TO FACILITATE CH-53K TRANSITION; STANDS UP IN NEW RIVER AS THE FIRST SQUADRON TO TRANSITION TO CH-53K
2) SQUADRON TRANSITIONS TO VMM-363
3) SQUADRON TRANSITION TO CH-53E; LAST SQUADRON TO TRANSITION TO CH-53K
4) SQUADRON TRANSITION TO CH-53K FY26

****Basing plans are subject to change and further environmental review****

MARINE HEAVY LIFT SQUADRON GEO-LOCATION



Basing plans are subject to change and further environmental review

MARINE LIGHT ATTACK HELICOPTER (HMLA) PLAN

	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
TOTAL SQUADRONS/PRIMARY MISSION AIRCRAFT AUTHORIZED (PMAA) - REQUIREMENT										
AC AH-1W	8-18	8-18	8-18	6-18	6-18	4-18	4-18	3-18	1-18	0-0
AC UH-1N	3-9	1-9	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0
RC AH-1W	1-18	1-18	1-18	1-18	1-18	1-18	1-18	1-18	1-18	0-0
RC UH-1N	1-9	1-9	1-9	0-0	0-0	0-0	0-0	0-0	0-0	0-0
AC AH-1Z	1-15	1-15	2-15	2-15	3-15	5-15	5-15	6-15	8-15	9-15
AC UH-1Y	6-12	8-12	9-12	9-12	9-12	9-12	9-12	9-12	9-12	9-12
RC AH-1Z	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	1-15
RC UH-1Y	0-0	0-0	0-0	1-12	1-12	1-12	1-12	1-12	1-12	1-12

	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
PRIMARY AIRCRAFT INVENTORY (PAI) PLAN - INVENTORY										
AC/RC PMAI										
AH-1W/UH-IN	121-36	112-18	109-6	105-9	102-0	90-0	90-0	71-0	36-0	6-0
AH-1Z/UH-1Y	8-36	14-54	25-72	37-84	48-98	59-110	71-120	85-120	112-120	140-120
TOTAL AC/RC TACTICAL	**129-72**	**126-72**	**134-78**	**142-93**	**150-98**	**149-110**	**161-120**	**156-120**	**148-120**	**146-120**
FRS PTAI										
AH-1W/UH-IN	13-8	14-6	15-0	15-0	14-0	12-0	12-0	12-0	0-0	0-0
AH-1Z/UH-1Y	5-8	8-8	12-8	13-8	12-8	14-12	14-12	15-12	15-12	15-12
TOTAL FRS PTAI	**18-16**	**22-14**	**27-8**	**28-8**	**26-8**	**26-12**	**26-12**	**27-12**	**15-12**	**15-12**
PDAI										
AH-1W/UH-IN	3-0	3-0	2-0	2-0	2-0	0-0	0-0	0-0	0-0	0-0
AH-1Z/UH-1Y	4-3	4-3	4-3	4-3	4-4	5-4	5-4	5-4	5-4	4-4
TOTAL PDAI	**7-3**	**7-3**	**6-3**	**6-3**	**6-4**	**5-4**	**5-4**	**5-4**	**5-4**	**4-4**
POAI										
HH-1N	3	3	3	0	0	0	0	0	0	0
UH-1Y	0	0	0	3	3	3	6	6	6	6
TOTAL POAI	**3**	**3**	**3**	**3**	**3**	**3**	**6**	**6**	**6**	**6**
BAI/PIPE										
AH-1W/UH-IN	0-5	0-5	0-5	0-5	0-0	10-0	5-0	8-0	28-0	28-0
AH-1Z/UH-1Y	0-0	0-0	0-0	0-0	0-0	0-0	0-1	0-18	0-18	0-18
TOTAL BAI/PIPE	**0-5**	**0-5**	**0-5**	**0-5**	**0-0**	**10-0**	**5-1**	**8-18**	**28-18**	**28-18**
PMAI PER HMLA (W/N)	**13-9**	**12-9**	**12-9**	**15-9**	**15-0**	**18-0**	**18-0**	**18-0**	**18-0**	**6-0**
PMAI PER HMLA (Z/Y)	**8-6**	**14-7**	**12-8**	**15-8**	**15-10**	**12-11**	**14-12**	**14-12**	**14-12**	**14-12**
TOTAL PAI	**154-99**	**155-97**	**167-97**	**176-112**	**182-113**	**190-129**	**197-143**	**196-160**	**196-160**	**196-160**
TOTAL PURCHASED	**189-160**	**189-160**	**189-160**	**189-160**	**189-160**	**189-160**	**189-160**	**189-160**	**189-160**	**189-160**

GENERAL NOTES:

1) IN FY11, ONE AC HMLA ACTIVATED.
2) TOTAL PROCUREMENT OBJECTIVE IS 160 UH-1Y AND 189 AH-1Z.
3) PMAI WILL DROP BELOW PMAA FOR UH-1Y THROUGH FY17 AND AH-1 UNTIL SUNDOWN OF AH-1W
4) SIX AH-1W INVENTORY IN FY20 IS FINAL RESERVE DET SITE.

MARINE LIGHT ATTACK HELICOPTER (HMLA) PLAN

CURRENT FORCE:

5 AC SQDN X 18 AH-1W/9 UH-1N
3 AC SQDN X 18 AH-1W/9 UH-1Y
1 RC SQDN X 18 AH-1W/9 UH-1N
1 FRS X 15 AH-1W/14 UH-1N
2 AH-1Z/6 UH-1Y
SAR 3 X HH-1N (Yuma)
3 X HH-46E (Cherry Point)

FORCE GOAL:

9 AC SQDN X 15 AH-1Z/12 UH-1Y
1 RC SQDN X 15 AH-1Z/12 UH-1Y
1 FRS X 15 AH-1Z/12 UH-1Y
SAR 3 X UH-1Y (Yuma)
3 X UH-1Y (Cherry Point)

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	PAA																																											
MAG-39																																												
HMLAT-303 **(1/2)**	15 AH-1/12 UH-1	V		Z			V																																					
HMLA-367 **(3)**	15 AH-1/12 UH-1			Z										RELOCATE TO HAWAII																														
HMLA-369	15 AH-1/12 UH-1	V																					Z				V																	
HMLA-169	15 AH-1/12 UH-1		Y				V																				Z				V												
HMLA-267	15 AH-1/12 UH-1			Y			V			Z				V																														
HMLA-469	15 AH-1/12 UH-1				Y			V														Z				V																	
MAG-26/29																																												
HMLA-567 **(4)**	15 AH-1/12 UH-1					Y			V																					Z			V									
HMLA-467	15 AH-1/12 UH-1									Y			V																		Z			V								
HMLA-167	15 AH-1/12 UH-1										Y		V																					Z			V					
HMLA-269	15 AH-1/12 UH-1													Y			V																					Z			V		
MAG-24																																												
HMLA-367	15 AH-1/12 UH-1	RELOCATE FROM CONUS																																						Z			V	
RESERVES																																												
HMLA-773	15 AH-1/12 UH-1														Y						V																				Z			V
SAR																																												
Yuma SAR	3 UH-1Y																		Y			V																					
Cherry Point SAR	3 UH-1Y																														Y			V									

Y = YANKEE TRANSITION BEGINS

Z = ZULU TRANSITION BEGINS

B = SIMULTANEOUS TRANSITION

V = TRANSITION COMPLETE

GENERAL NOTES:

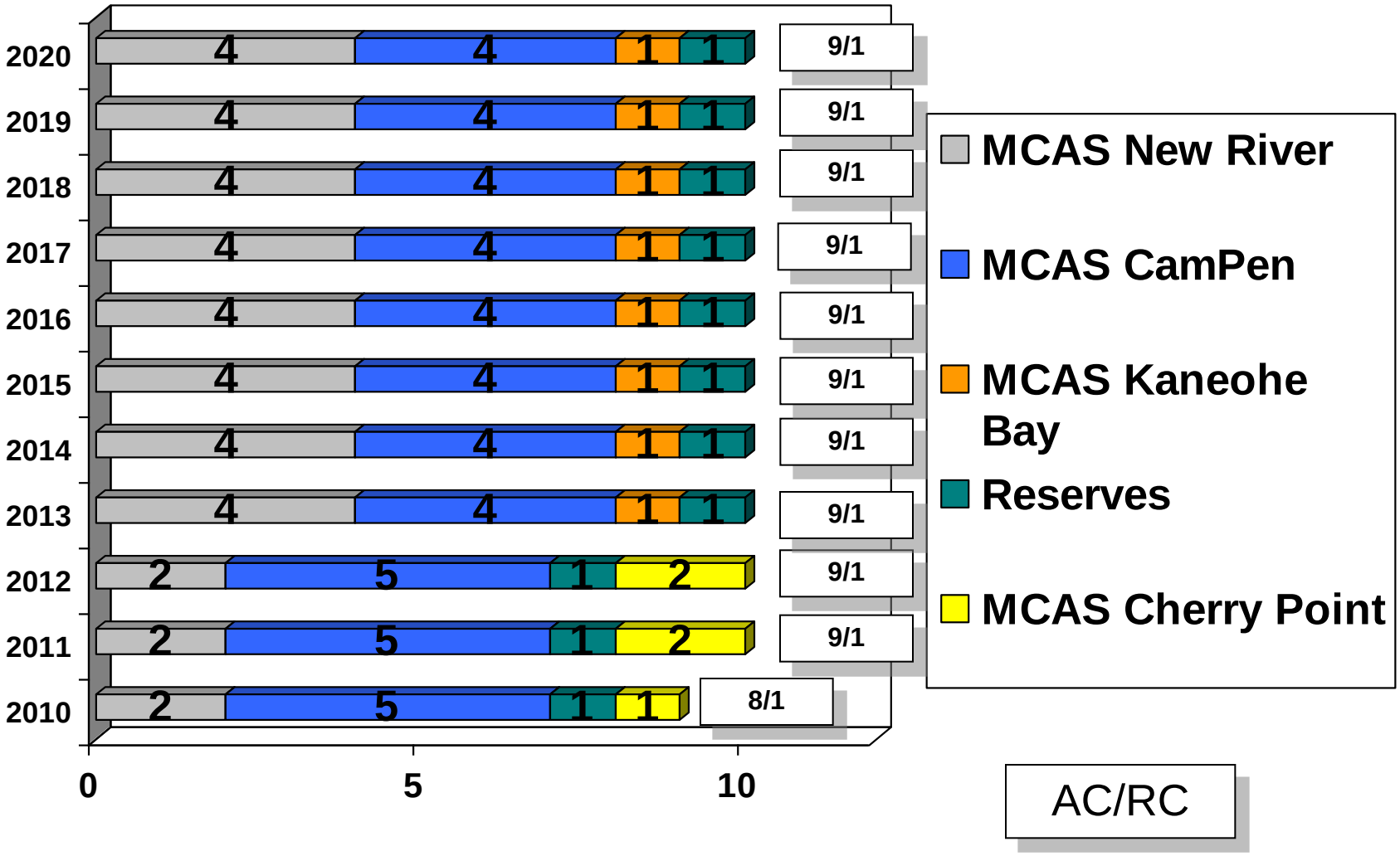
TRANSITION PLAN REFLECTS ADJUSTED PROCUREMENT OBJECTIVE (160 UH-1Y AND 189 AH-1Z) TO SUPPORT NINE AC AND ONE RC HMLAS BY FY11. UH-1Y TRANSITION WILL CONTINUE THROUGH SUNDOWN WITH REDUCED FLIGHTLINE ENTITLEMENT, BACKFILLING TO 12 STARTING IN FY15.

SPECIFIC NOTES:

1. HMLAT-303 UH-1Y RFT 2ND QTR FY08, AH-1Z RFT 2ND QTR FY10. PROJECT LAST UH-1N RAC COMPLETE FY11, LAST AH-1W PILOT COMPLETE FY19.
2. ANTICIPATE HMLAT-303 PTAI: ~FY16 FOR UH-1Y AND FY18 AH-1Z.
3. HMLA-367 SOURCES FIRST TWO AH-1Z/UH-1Y MEU DETS WHILE MAINTAINING AH-1W. HMLA-367 WILL RETAIN FIVE AH-1W AND FOUR UH-1Y FOR RELOCATION TO HAWAII
4. HMLA-567 STAND-UP AS AC HMLA IN FY11. WILL SERVE AS EAST COAST TTU INITIALLY.

****Basing plans are subject to change and further environmental review****

MARINE LIGHT ATTACK SQUADRON GEO-LOCATION



Basing plans are subject to change and further environmental review

MARINE HELICOPTER SQUADRON ONE (HMX-1) PLAN

MARINE HELICOPTER SQUADRON ONE (HMX-1) PLAN

CURRENT FORCE: VH-3D X 11
VH-60N X 8
CH-46E X 7
CH-53E X 6

FORCE GOAL: VXX x TBD
MV-22B X 14

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	TAI																																											
HMX-1 QUANTICO	11 VH-3D																																											
	8 VH-60N																																											
	7 CH-46E													M							V																								
	6 CH-53E					C	V																																						

M = MV-22B TRANSITION BEGINS C = CH-46E TRANSITION BEGINS V = TRANSITION COMPLETE

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
AIRCRAFT TYPE/TAI											
VH-3D	11	11	11	11	11	11	11	11	11	11	11
VH-60N	8	8	8	8	8	8	8	8	8	8	8
CH-46E	7	14	14	8	0	0	0	0	0	0	0
CH-53E	6	0	0	0	0	0	0	0	0	0	0
VXX	0	0	0	0	0	0	0	TBD	TBD	TBD	TBD
MV-22B	0	0	0	6	14	14	14	14	14	14	14
TOTAL HMX-1 TAI	**32**	**33**	**33**	**33**	**33**	**33**	**33**	**33**	**33**	**33**	**33**

1. RMD-802 TERMINATES VH-71 PROGRAM AND RESTARTS VXX PROGRAM II
2. 7 CH-46E DELIVERED FY11; 6 CH-53E PHASED OUT FY11
3. 6 MV-22 DELIVERED FY13; 6 CH-46E PHASED OUT FY13
4. 8 MV-22 DELIVERED FY14; 8 CH-46E PHASED OUT FY14
5. HMX-1 IS LOCATED AT MCAF QUANTICO, VA

****Basing plans are subject to change and further environmental review****

MARINE SEARCH AND RESCUE (SAR) PLAN

CURRENT FORCE: 3 X HH-46E, 3 X HH-1N

FORCE GOAL: 6 X UH-1Y

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	POAA																																												
MCAS CHERRY POINT																																													
VMR-1	3 HH-46E																																												
	3 UH-1Y																													Y	V														
MCAS YUMA																																													
	3 HH-1N																																												
	3 UH-1Y																		Y	V																										

Y = YANKEE TRANSITION
V = TRANSITION COMPLETE

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
SAR PAI PLAN											
SAR POAI											
HH-46E	3	3	3	3	3	3	3	0	0	0	0
HH-1N	3	3	3	3	3	0	0	0	0	0	0
UH-1Y	0	0	0	0	0	3	3	6	6	6	6
TOTAL SAR PAI	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**

****Basing plans are subject to change and further environmental review****

Section 3 --- Marine Fixed-Wing and Tactical Aviation Plan

Marine Fixed Wing Aviation Plan

Missions

MARINE FIGHTER/ATTACK SQUADRON (VMFA): Support the MAGTF commander by destroying surface targets and enemy aircraft, and escort friendly aircraft, day or night, under all weather conditions during expeditionary, joint or combined operations.

MARINE ALL-WEATHER FIGHTER/ATTACK SQUADRON (VMFA-AW): Support the MAGTF commander by providing supporting arms coordination, conducting multi-sensor imagery, and destroying surface targets and enemy aircraft day or night, under all weather conditions during expeditionary, joint, or combined operations.

MARINE FIGHTER/ATTACK TRAINING SQUADRON (VMFAT): Conduct combat capable fighter/attack training for selected aircrews in the Joint Strike Fighter F-35B aircraft and the legacy F/A-18 and provide technical training for aviation maintenance personnel.

MARINE ATTACK SQUADRON (VMA): Support the MAGTF commander by destroying surface targets, and escort friendly aircraft, day or night, under all weather conditions during expeditionary, joint or combined operations.

MARINE ATTACK TRAINING SQUADRON (VMAT): Conduct combat capable attack training for selected aircrews in the AV-8B and provide technical training for aviation maintenance personnel.

MARINE REFUELING TRANSPORT SQUADRON (VMGR): Support the MAGTF commander by providing aerial refueling, assault support, conducting intelligence, surveillance, reconnaissance, target acquisition, indirect and direct fires adjustment, battlefield damage assessment and destroying surface targets day or night under all weather conditions during expeditionary, joint, or combined operations.

MARINE TACTICAL ELECTRONIC WARFARE SQUADRON (VMAQ): Support the MAGTF commander by conducting airborne electronic warfare, day or night, under all weather conditions during expeditionary, joint, or combined operations.

MARINE UNMANNED AERIAL VEHICLE SQUADRON (VMU): Support the MAGTF commander by conducting reconnaissance, surveillance, target acquisition, indirect fires adjustment, battlefield amage assessment (BDA) and support the rear area security plan during expeditionary, joint or combined operations.

MARINE FIGHTER TRAINING SQUADRON (VMFT): Provide adversary F-5 support to the Fleet Replacement Squadron (VMFAT-101), to Fleet Squadron Core readiness training, and to the Weapons and Tactics Instructor (WTI) course. This is a reserve squadron.

OPERATIONAL SUPPORT AIRCRAFT (OSA): Provide time-sensitive air transport of high priority passengers and cargo to, within, and between theaters of war.

Legacy Aircraft

EA-6B:

The USMC currently has four active VMAQ squadrons. The first of the four has begun the transition to the Improved Capabilities (ICAP) III version of the Prowler. The first ICAP III aircraft was delivered in April 2010; the community will complete the transition in 2012. USMC EA-6B operational capability will be sustained through 2019. This structure is intended to remain until the first squadron decommissions during 2016, with one squadron decommissioning each successive year; the last squadron will decommission by the end of 2019. At that time, F-35B inherent capabilities, next generation jammer technology and UAS EW payloads will fulfill the EA-6B ICAP-III's role.

F-18 A-D, AV-8B:

The USMC currently has twelve active VMFA/VMFA(AW) squadrons and one reserve VMFA. Two active and two reserve squadrons have been placed into cadre status to support the manpower needs of JSF transition. These squadrons will be reconstituted with the F-35B. There are currently seven active VMAs comprised of fourteen AV-8Bs aircraft apiece.

KC-130T (Reserve only):

USMCR KC-130T squadrons are planned to transition to the KC-130J beginning in FY14. KC-130T aircraft will be retired incrementally as KC-130J aircraft are delivered to 4th MAW VMGR squadrons.

New Aircraft Test and Evaluation Updates

JSF (F-35B)

DEVELOPMENTAL TEST: Ongoing. Block I commences 1st Qtr of FY11. Block II commences 4nd Qtr of FY11. Block III commences 3nd Qtr of FY12.

OPERATIONAL TEST AND EVALUATION: Commences 4th Qtr of FY12. First CQ period September 2012.

INITIAL OPERATIONAL CAPABILITY: The Marine Corps objective is to achieve IOC in December, 2012, when the first operational squadron—VMFA-332, MAG-13, MCAS Yuma, AZ—receives aircraft, equipment and personnel in accordance with IOC requirements. These are defined in the 1 March 2010 DC(A) requirements letter to the JSF Program Executive Officer. Specifics include, but are not limited to, 10 aircraft capable of executing assigned TACAIR mission sets and 6 aircraft capable of an austere and/or ship-based detachment.

To source aircrew and maintainers in support of IOC and beyond, the Marine Corps reactivated a previously decommissioned fighter-attack unit to form a new fleet replacement squadron, VMFAT-501, on 2 April 2010. The VMFAT-501 Warlords conduct training at the F-35 Joint Integrated Test Center, Eglin AFB, Florida. With administrative milestones complete and operational relationships established, the Warlords will receive their first aircraft in FY11 and round out their full complement of 20 F-35Bs in FY14.

KC-130J

DEVELOPMENTAL TEST: Completed 15 September 2003.

HARVEST HAWK: In response to an Urgent Universal Need Statement, the USMC is integrating a bolt-on/bolt-off ISR/weapon mission kit for use on existing KC-130J aircraft. This mission kit is designed to re-configure any KC-130J aircraft rapidly into a platform capable of performing persistent targeting ISR from a AN/AIQ-30 Targeting Sight System mounted on the aft portion of the left hand external fuel tank. Additionally, the mission kit will enable the aircraft to deliver precision fires using Hellfire, Griffin, and Viper Strike munitions. In the future, a 30mm cannon is planned, to deliver high-volume suppressive fires. This mission kit is designed as a complementary capability that takes advantage of the aircraft's extended endurance and in its final planned configuration, will not detract from its ability to perform its primary mission of aerial refueling. IOC is anticipated for the fourth quarter of FY10. Each active component Marine Air Wing will receive three Harvest Hawk kits for a total POR of nine systems. Harvest Hawk capability is not currently planned for the reserve component.

TACAIR INTEGRATION (TAI) UPDATE

A revised Memorandum of Agreement with the Navy was signed in March 2008. It replaces capabilities-based scheduling (CBS) with global force management (GFM) as the principal tool used in ensuring the most equitable schedule for DoN TACAIR. In addition, the MOA calls for the creation of a five-year consolidated schedule (three year execution, two year planning) updated at the annual TACAIR integration team (TAIT) conference.

The Marine Corps has three squadrons integrated into Navy Carrier Air Wings (CVWs), while the Navy has one VFA squadron integrated into the Marine Corps Unit Deployment Program (UDP.) This provides a Marine Corps "net gain" of two squadrons. With the growth of a fourth VMFA to a CVW, the Marine Corps will move to a net gain of three squadrons starting in FY12.

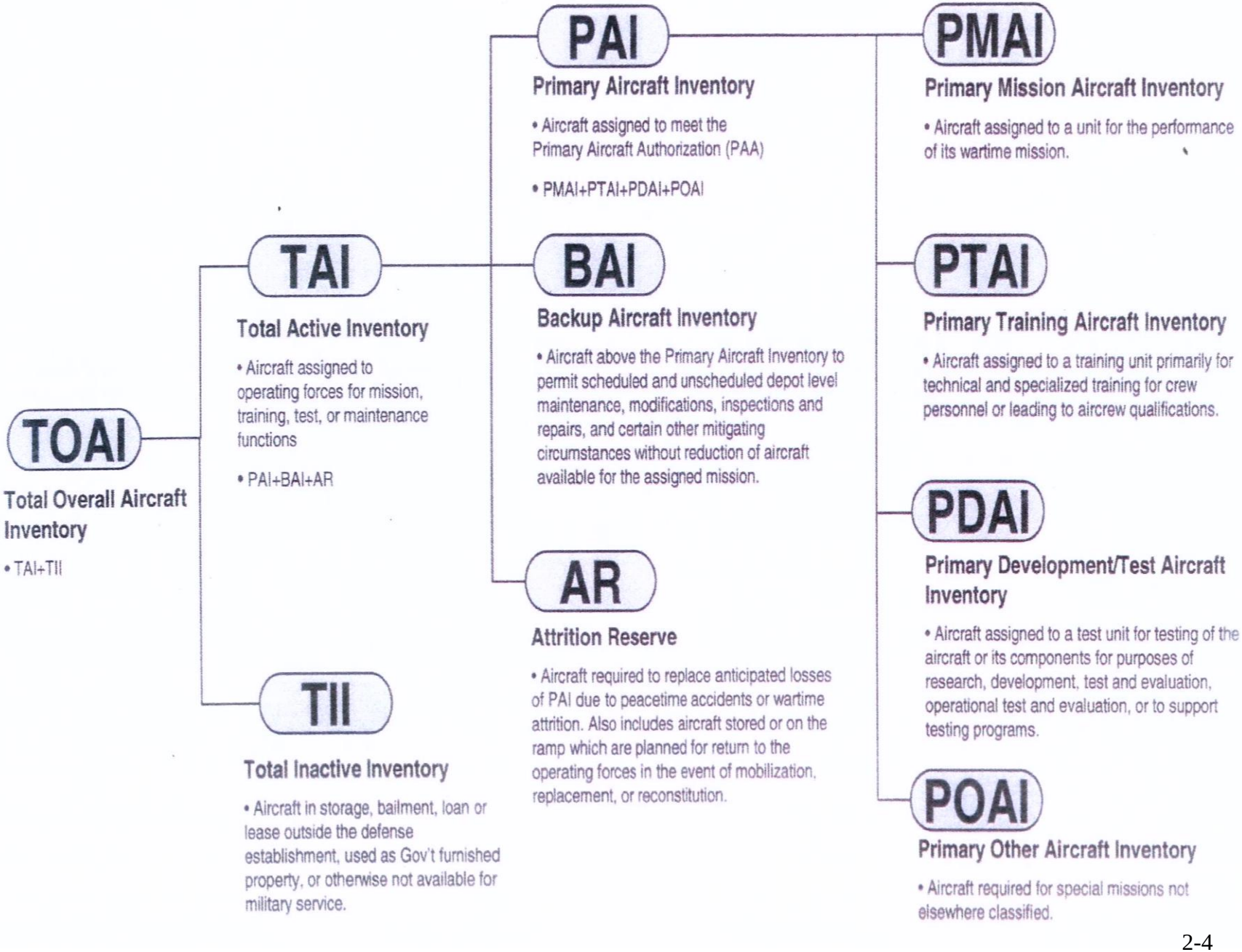
F/A-18 SERVICE LIFE MANAGEMENT PROGRAM (SLMP)

The health of our F/A-18 inventory is critical to the success of TAI and the Department of the Navy's TACAIR support to the warfighter. This aircraft is also critical to the success of the MAGTF.

The current Center Barrel Replacement Plus (CBR+) program will extend the life of the Lot 17 and below aircraft (421 total) to 1.0 Wing Root Fatigue Life (WRFLE).

In November 2007, Commander, Naval Air Forces (CNAF) and DC(A) released a message outlining a program to better manage our use of Hornet service life. Under this program, service life is managed for each individual aircraft enabling a more comprehensive and efficient approach to aircraft service life preservation. In addition, the Service Life Assessment Program (SLAP) will determine investments required to extend the F/A-18 A+/C/D to 10,000 Flight Hours. Earlier phases of this program extended the catapult and landing limits of the A+/C/D to 2700 and 14,500 respectively (1500 catapults and 17,000 landing for the F/A-18D). These continuing efforts are critical to preserving the inventory bridge to F-35B IOC in 2012.

Inventory Terminology and Breakdown



TACAIR LEGACY TO JSF TRANSITION PLAN

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
TOTAL SQUADRONS											
FA-18A+/C	8	8	8	8	8	6	5	5	5	5	5
FA-18D	5	5	5	5	4	4	4	4	3	1	0
AV-8B	7	7	7	7	6	6	6	5	4	3	1
F-35B	0	0	1	2	2	4	6	7	8	10	13
FA-18 FRS	1	1	1	1	1	1	1	1	1	1	0
AV-8B FRS	1	1	1	1	1	1	1	1	1	1	0
F-35B FRS	1	1	1	1	2	2	2	3	3	3	3
F-5N/F	1	1	1	1	1	1	1	1	1	1	1

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY 20
PAI PLAN											
AC/RC PMAI											
FA-18A+/C	96	96	96	96	96	72	60	60	60	60	60
FA-18D	60	60	60	60	48	48	48	48	36	12	0
AV-8B	98	98	98	98	84	84	84	70	56	42	14
F-35B	0	0	6	12	20	33	57	76	81	101	129
F-5N/F	13	13	13	13	13	13	13	13	13	13	13
TOTAL AC/RC TACTICAL	**267**	**267**	**273**	**279**	**261**	**250**	**262**	**267**	**246**	**228**	**216**
FRS PTAI											
FA-18A/C	18	21	21	21	19	19	18	17	15	10	0
FA-18B	4	4	4	4	2	2	2	2	0	0	0
FA-18D	13	13	13	13	13	13	13	13	15	10	0
AV-8B	14	14	14	10	10	10	8	8	6	6	0
TAV-8B	14	14	14	10	10	10	8	8	6	6	0
F-35B	1	10	12	18	28	32	34	48	54	60	60
TOTAL FRS PTAI	**64**	**76**	**78**	**76**	**82**	**86**	**83**	**96**	**96**	**92**	**60**

* Operational commitments, contingency plans, and service life expenditure rates may change T/M/S turnover sequence

TACAIR LEGACY TO JSF TRANSITION PLAN

CURRENT FORCE:

7 AC VMFA SQDN x 12 F/A-18 A/C

5 AC VMFA(AW) SQDN x 12 F/A-18D

1 RC VMFA SQDN x 12 F/A-18C

7 AC VMA SQDN x 14 AV-8B

1 FRS x 28 AV-8B/TAV-8B

1 FRS x 36 F/A-18 B/C/D

FORCE GOAL:

14 AC VMFA SQDN x 10 F-35B

7 AC VMFA SQDN x 16 F-35B

3 RC VMFA SQDN x 10 F-35B

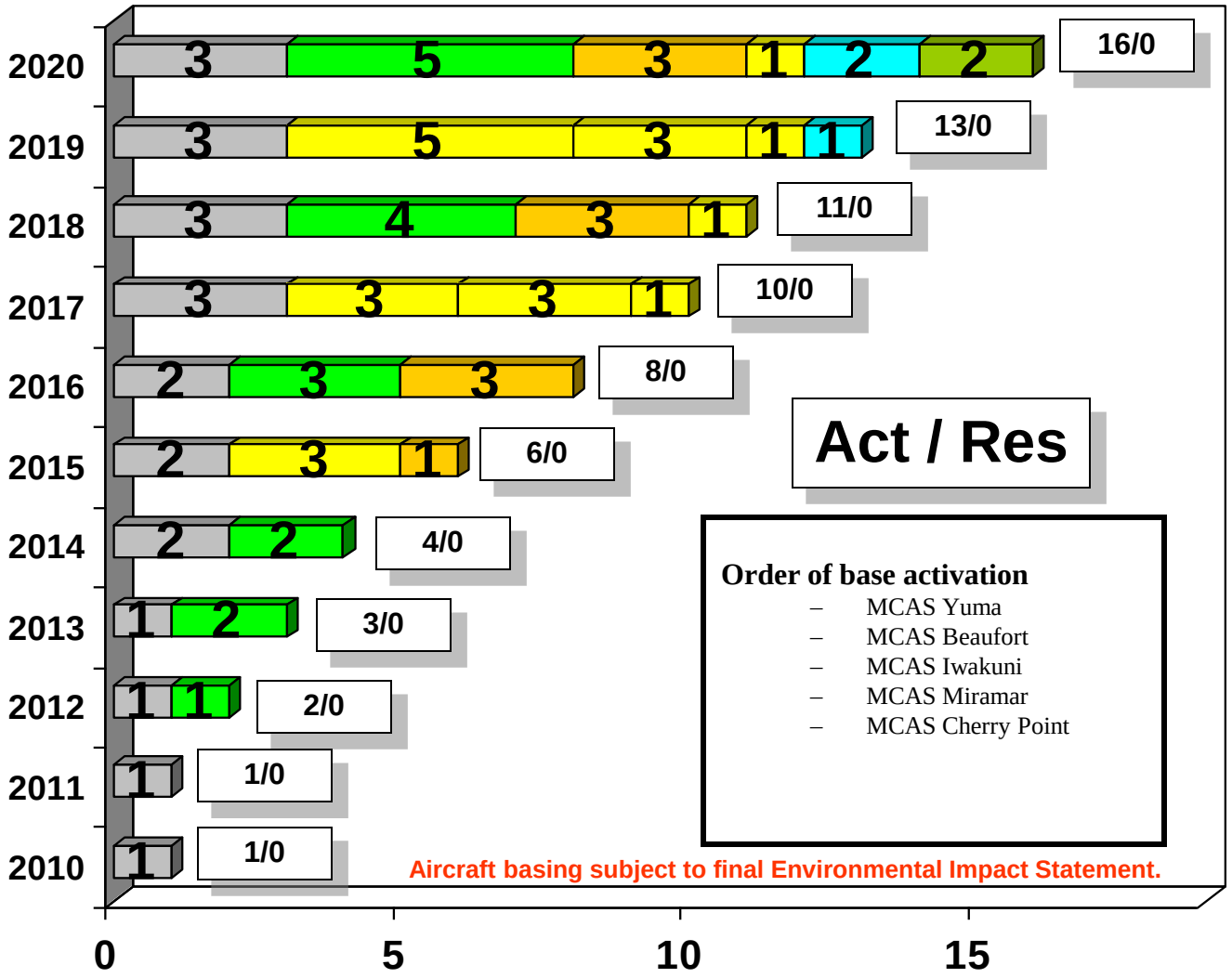
3 FRS SQDN x 20 F-35B

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
UNIT, BASE	**PMAA**	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAG-31, Eglin AFB																																												
VMFAT-501	20 x F-35B					N																																						
MAG-13, MCAS Yuma																																												
VMFA-332	10 x F-35B					C				B																																		
VMFA-212	10 x F-35B									C				B																														
JSF 4	F-35B																	T				B																							
JSF 8	F-35B																													T				B										
JSF 10	F-35B																																					T				B			
MAG-31, MCAS Beaufort																																												
VMFAT-502	20 x F-35B																	N																										
VMFA-224	10 x F-35B																	T				B								TRX IWAKUNI														
JSF 5	F-35B																					T			B																			
JSF 6	F-35B																									T			B															
JSF 7	F-35B																													T			B											
VMFAT-503	20 x F-35B																																	N										
MAG-12, MCAS Iwakuni																																												
VMFA-224	16 x F-35B																													TRX IWAKUNI														
MAG-11, MCAS Miramar																																												
VMFA-242	10 x F-35B																																			T			B						
JSF 13	F-35B																																							T			B		
JSF 14	F-35B																																									T			B
MAG-14, MCAS Cherry Point																																												
JSF 11	F-35B																																							T			B		
JSF 12	F-35B																																								T			B	
JSF 15	F-35B																																											T	
Reserve Component																																												

B = Transition complete, initial complement of aircraft, equipment, and trained personnel assigned
C = Commencement of transition from a Cadre status
N = New squadron, applies to F-35B FRS squadrons; VMFAT-501, VMFAT-502, and VMFAT-503
T = Commencement of transition from a legacy TACAIR squadron

****Aircraft basing subject to final Environmental Impact Statement and Record of Decision****

Marine Joint Strike Fighter Squadron Geo-Location



ITC/PTC
- 1 Apr 10: VMFAT-501 activated
- 2014: VMFAT-502
- 2017: VMFAT-503

MCAS Yuma
- RFO: 1 May 2012
- VMFA-332 IOC NLT Dec 2012

MCAS Beaufort
- RFO: 1 Jan 2014
- Proposed PTC location

MCAS Iwakuni
- RFO: 1 Mar 2014 (Planned UDP)
- Proposed first 16 aircraft squadron

MCAS Miramar
- RFO: 1 Aug 2018

MCAS Cherry Point
- RFO: 1 Jul 2019

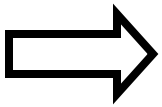
MARINE AERIAL REFUELER/TRANSPORT (VMGR) PLAN

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
PAI PLAN											
AC/RC PMAI											
KC-130J	38	45	47	47	49	52	55	57	59	61	63
KC-130T	24	24	24	24	24	18	15	12	10	8	6
TOTAL AC/RC PMAI	**62**	**69**	**71**	**71**	**73**	**70**	**70**	**69**	**69**	**69**	**69**
TOTAL PAI	**63**	**70**	**72**	**72**	**74**	**71**	**71**	**70**	**70**	**70**	**70**

NOTE: PMAI FOR AC VMGR SQUADRONS IS PLANNED TO INCREASE TO 15 (+3) IN FY11.
TOTAL AIRCRAFT INVENTORY (TAI) PROGRAM OF RECORD IS 79 KC-130J AIRCRAFT.
PDAI IS 1 KC-130J AIRCRAFT.
PIPELINE/ATTRITION AIRCRAFT INTRODUCED BEGINNING IN FY24.

MARINE AERIAL REFUELER/TRANSPORT (VMGR) PLAN

CURRENT FORCE: 3 AC SQDN X 12 KC-130J
2 RC SQDN X 12 KC-130T



FORCE GOAL: 3 AC SQDN X 15 KC-130J
2 RC SQDN X 12 KC-130J

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
UNIT/LOCATION	PMAA	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAG-36 FUT																																												
VMGR-152	15 KC-130J	P												RELOCATES TO IWAKUNI																														
MAG-12 IWK																																												
VMGR-152	15 KC-130J													RELOCATES FROM FUTENMA																														
MAG-11 MIR																																												
VMGR-352	15 KC-130J	P																																										
MAG-14 CPT																																												
VMGR-252	15 KC-130J	P																																										
MAG-49 WLG																																												
VMGR-452 STW	12 KC-130T	RETIRE AS KC-130JS DELIVER																																										
VMGR-452 STW	KC-130J																	J																										V			
MAG-41 FTW																																												
VMGR-234	12 KC-130T	RETIRE AS KC-130JS DELIVER																																										
VMGR-234	KC-130J																									J																		V	

J = KC-130J TRANSITION BEGINS
V = TRANSITION COMPLETE
P = PMAI INCREASES TO 15

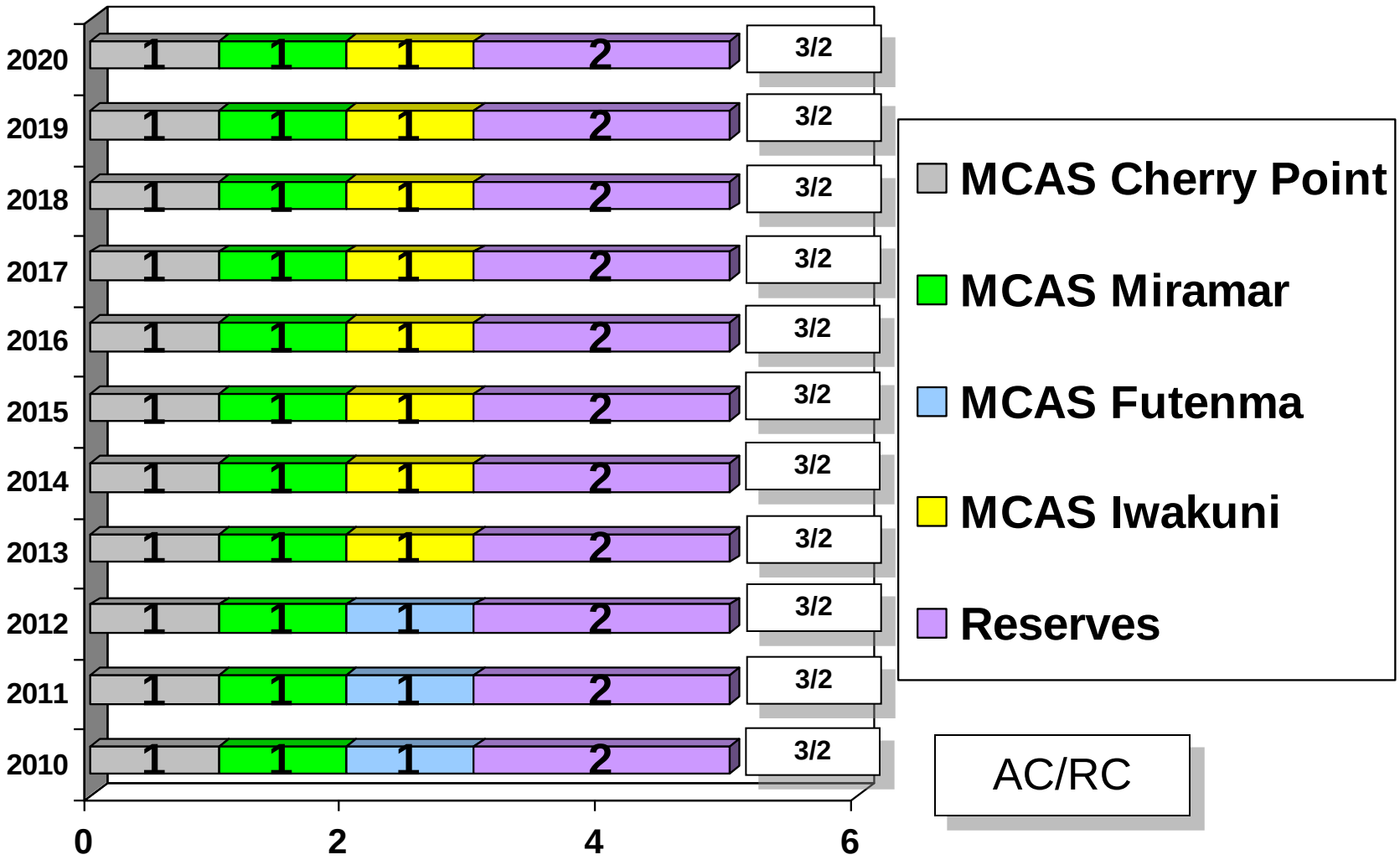
GENERAL NOTES:
~ TRANSITION PLAN AS DEPICTED IS DC(A) APPROVED BY LOCATION AND UNIT.

		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
TOTAL SQUADRONS												
AC KC-130J		2-12	1-12									
AC KC-130J		1-13	2-15	3-15	3-15	3-15	3-15	3-15	3-15	3-15	3-15	3-15
RC KC-130T		2-12	2-12	2-12	2-12	1-9	1-6	1-6	1-6	1-5	1-4	1-3
RC KC-130T						1-12	1-12	1-9	1-7	1-6	1-5	1-4
RC KC-130J						1-3	1-6	1-6	1-6	1-7	1-8	1-9
RC KC-130J								1-3	1-5	1-6	1-7	1-8

NOTE: PROGRAM OF RECORD IS 51 ACTIVE COMPONENT AND 28 RESERVE COMPONENT KC-130J AIRCRAFT. REQUIREMENT IS FOR 3 AC SQUADRONS OF 15 AIRCRAFT (PMAI), 2 RC SQUADRONS OF 12 AIRCRAFT (PMAI) PLUS 1 OT KC-130J AIRCRAFT AT VX-20 AND 9 KC-130J BAI PIPELINE/ATTRITION AIRCRAFT.

****Basing plans are subject to change and further environmental review****

MARINE AERIAL REFUELER/TRANSPORT SQUADRON GEO-LOCATION



****Basing plans are subject to change and further environmental review****

MARINE ELECTRONIC ATTACK (VMAQ) PLAN

CURRENT FORCE: 4 AC SQDN X 5 EA-6B

FORCE GOAL: Electronic Warfare System of Systems

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	PMAI/PTAI																																											
MAG-14 NKT																																												
VMAQ-1	5 EA-6B	5				5				5				5				5				5				5				5				0				0				0			
VMAQ-2	5 EA-6B	5				5				5				5				5				5				5				5				5				5				0			
VMAQ-3	5 EA-6B	5				5				5				5				5				5				5				5				5				0				0			
VMAQ-4	5 EA-6B	5				5				5				5				5				5				5				0				0				0				0			
VMAQT	6 EA-6B	0				0				0				0				TBD				TBD				TBD				0				0				0				0			

VMAQ squadron stand down begins FY16 and is completed in FY19.
USMC EA-6B organizational structure remains 4 operational squadrons (5 a/c each). Structure and PMAI/PTAI will be reviewed annually.

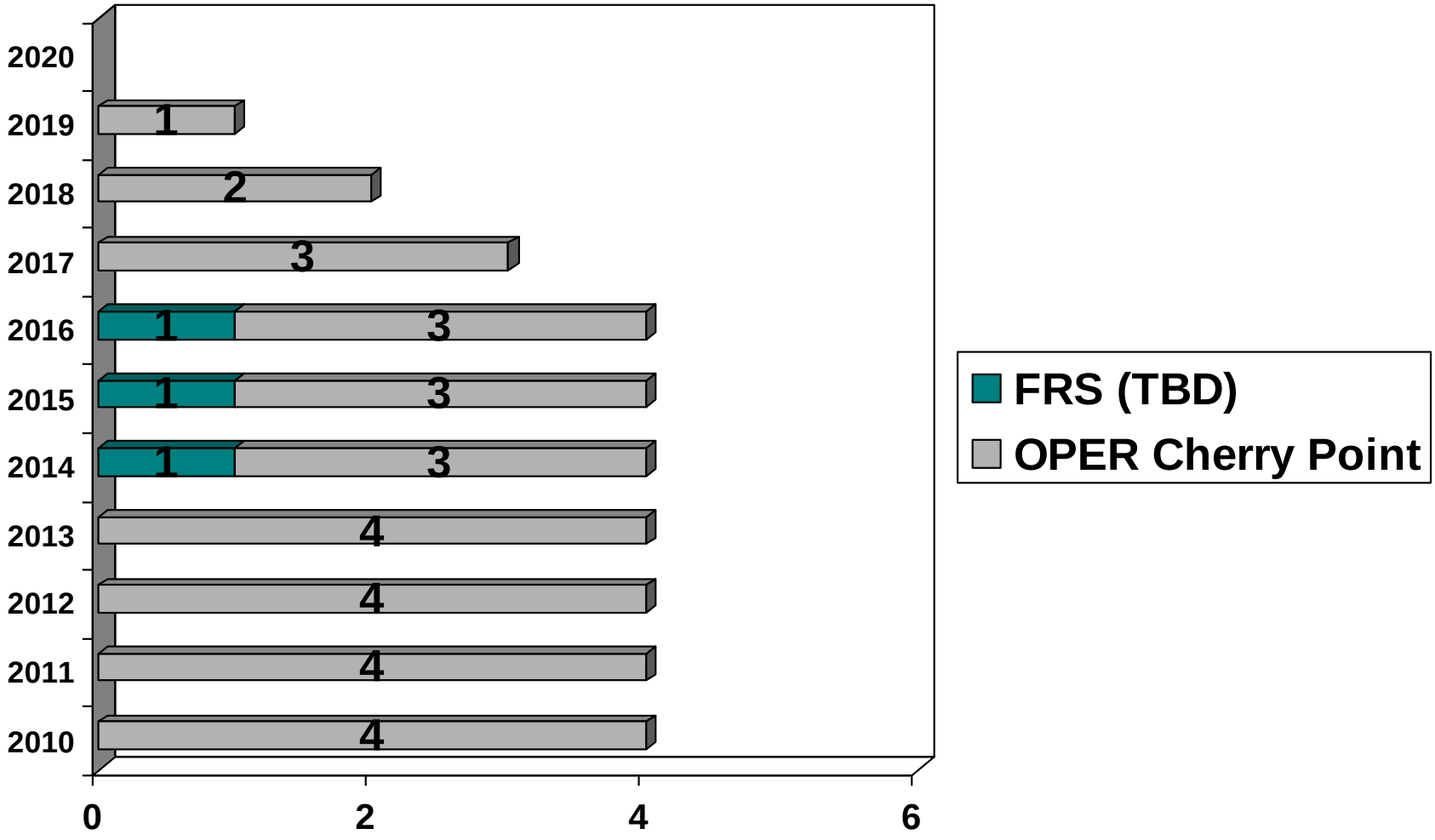
	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
TOTAL SQUADRONS/UNIT PMAI											
AC EA-6B PMAI	4	4	4	4	4	4	4	3	2	1	0
AC EA-6B PTAI	0	0	0	0	TBD	TBD	TBD	0	0	0	0

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
PAI PLAN											
AC PMAI/PTAI											
EA-6B PMAI	20	20	20	20	20	20	20	15	10	5	0
EA-6B PTAI	0	0	0	0	TBD	TBD	TBD	0	0	0	0
TOTAL AC PMAI/PTAI	20	20	20	20	20	20	20	15	10	5	0

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
SIMULATOR PLAN		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TYPE/LOCATION	DEVICE																																											
EA-6B NKT	(1) OF/NT 2FI43													D																															
EA-6B NKT	(1) 2F185																																											
EA-6B NKT	(1) WST 2F187																																											
EA-6B NKT	(1) 1.5E+44																																											
EA-6B RJOI	(1) WST 2F178																																											
EA-6B NKT	(1) FS/WST 2F188																																											

D = Decommission

MARINE ELECTRONIC ATTACK SQUADRON GEO-LOCATION



MARINE OPERATIONAL SUPPORT AIRLIFT (OSA) PLAN

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
POAI PLAN											
UC-12F/B	6	6	6	2	2	0	0	0	0	0	0
UC-12W	6	6	6	9	9	12	12	12	12	12	12
UC-35C/D	12	12	12	10	10	10	10	10	10	10	10
UC-35 "ER"	0	0	0	2	2	2	2	2	2	2	2
C-20G	1	1	1	1	1	1	0	0	0	0	0
C-20RA	0	0	0	0	0	0	1	1	1	1	1
C-9B	2	2	2	2	2	0	0	0	0	0	0
C-40A	0	0	0	0	0	2	2	2	2	2	2
TOTAL	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**	**27**

MARINE OPERATIONAL SUPPORT AIRLIFT (OSA) PLAN

CURRENT FORCE 12 UC-35C/D
11 UC-12B/F/W
1 C-20G
2 C-9B

FORCE GOAL: 12 Extended Range Replacement aircraft
11 UC-12W
1 C-20 Replacement Aircraft
2 C-40A

T = TRANSITION

UNIT/LOCATION	PAI	FY10 1 2 3 4	FY11 1 2 3 4	FY12 1 2 3 4	FY13 1 2 3 4	FY14 1 2 3 4	FY15 1 2 3 4	FY16 1 2 3 4	FY17 1 2 3 4	FY18 1 2 3 4	FY19 1 2 3 4	FY20 1 2 3 4
MCAS CHERRY PT												
VMR-1	2 UC-35D											
	2 C-9B											
	2 C-40A						T					
MCAS NEW RIVER												
VMR DET NR	2 UC-12B											
	2 UC-12W				T	**						
MCAS BEAUFORT												
VMR DET BFT	1 UC-12B											
	1 UC-12W				T	**						
MCAS MIRAMAR												
VMR DET MIR	2 UC-35D											
	1 UC-12B/F											
	1 UC-12W		T									
MCAS YUMA												
VMR DET YUMA	2 UC-12B											
	2 UC-12W				T	**						
MCAF K-BAY												
VMR DET K-BAY	1 C-20G											
	1 C_20RA							T				
MCAS FUTENMA												
VMR DET FUT	3 UC-35D					1 UC-35D						
	2 UC-35 "ER"					T						
	1 UC-12F											
	1 UC-12W		T									
MCAS IWAKUNI												
VMR DET IWA	2 UC-12F											
	2 UC-12W		T									
NAF ANDREWS												
VMR ANDREWS	3 UC-35D											
NAS JRB NO												
VMR BELLE CHASSE	2 UC-35C											
	2 UC-35D					T						
	1 UC-12B											
	2 UC-12W		T									

****Basing plans are subject to change and further environmental review****

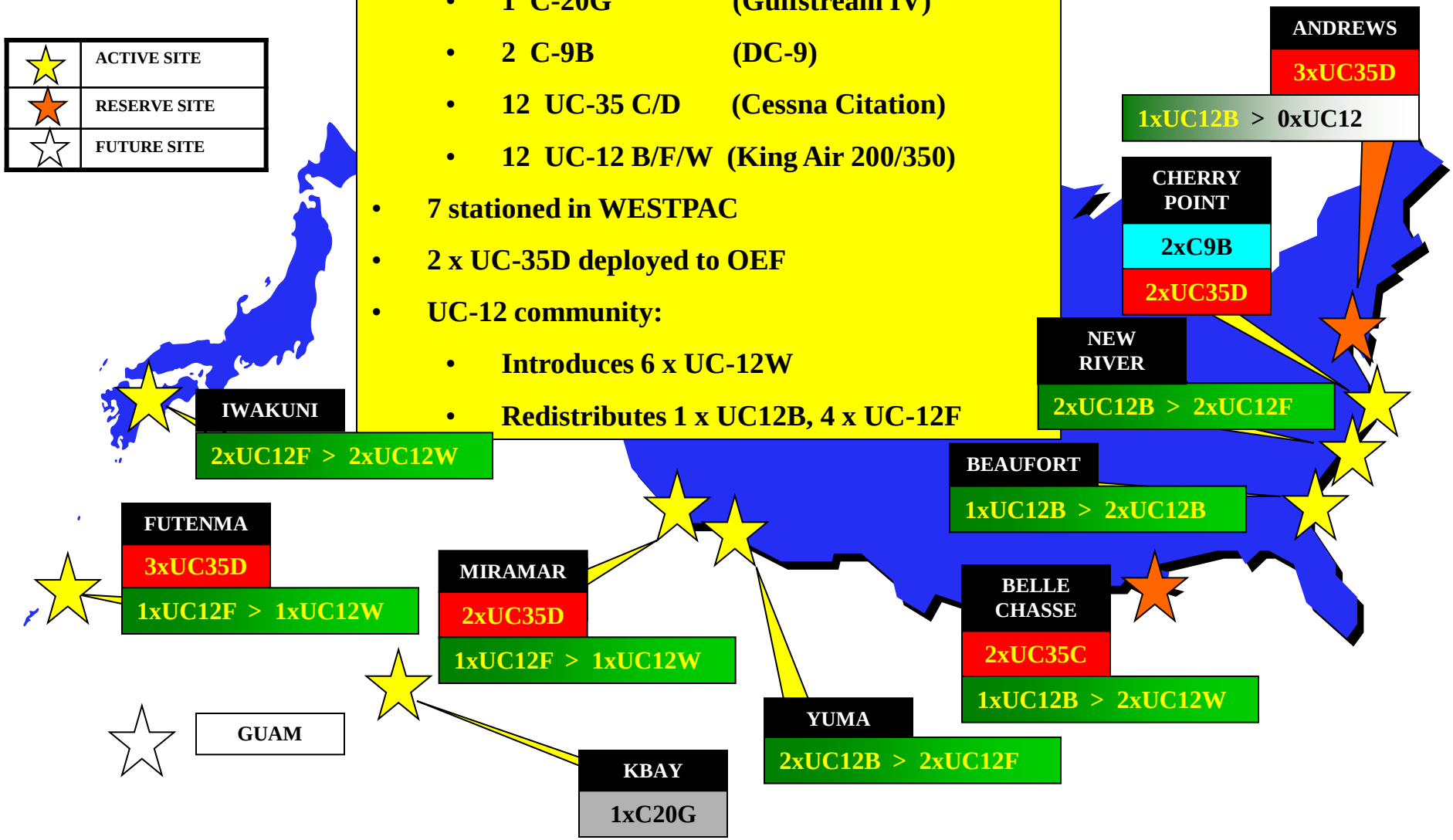
MARINE OSA TRANSFORMATION

ASE Has Aircraft Survivability Equipment (ASE)

ASE Will have Aircraft Survivability Equipment

MARINE CORPS OSA GEO-LOCATION

- 27 total aircraft:
  - 1 C-20G (Gulfstream IV)
  - 2 C-9B (DC-9)
  - 12 UC-35 C/D (Cessna Citation)
  - 12 UC-12 B/F/W (King Air 200/350)
- 7 stationed in WESTPAC
- 2 x UC-35D deployed to OEF
- UC-12 community:
  - Introduces 6 x UC-12W
  - Redistributes 1 x UC12B, 4 x UC-12F



Section 4 --- Marine Reserve Aviation Plan

Reserve Integration and Total Force

Since 2003, 4th MAW has served as an operational reserve. The operational aviation reserve in 2011 will focus on six lines of operation (LOOs) to augment and reinforce the active component:

1. OCO / support to the current fight
2. Theater Security Cooperation support
3. Predeployment Training Program (PTP) support
4. OPLAN support
5. UDP support
6. Staff, IA and MAG ACE CE support to COCOMs, JTFs, MARFORs, MEFs, MEBs and MEUs

The current 4th MAW posture has provided overseas contingency operations with a ready supply of reserve component units, detachments and individual augments in support of combat operations. 100% of 4th MAW's operational units have mobilized and deployed in support of OCO. Reserve integration has proven to be a force multiplier as RC Marines continue to serve when and where needed as a part of the total force.

Focusing on future requirements, HQMC, Marine Forces Reserve and 4th MAW are addressing near-, mid- and long-term challenges to reserve aviation training, readiness and recruitment/retention as weighed against requirements as set forth in this AvPlan for OCO and the six 4th MAW lines of operation above. In 2010, the 4th MAW 2020 Vision was re-designated the AvPlan Reserve Integration Strategy (AVRIS). The AVRIS is a multi-year phased plan developed by Marine Forces Reserve and Headquarters Marine Corps to:

- Support Marine aviation

- Develop processes and measures to retain next-generation personnel

- Promote reserve aviation training, readiness, and equipment commonality with active component aviation

A key component of the AVRIS was initiated in 2010 with the establishment of MATSG-42. This unit is designed to enable 4th MAW to better augment the AC and to enable the transition to RC next-generation aircraft. MATSG-42 will establish Squadron Augmentation Units (SAUs) to provide up to 328 Marines in support of CNATRA, TECOM, Fleet Replacement Squadrons, the Naval Safety Center, and HMX-1. MATSG 42 currently augments pilots to T-34, H-57, AV-8B, F-18 and H-1 training squadrons.

Additionally, an Aviation Command and Control Team (AC2T) was approved to provide sustainable, professional and proficient Air Operations Center expertise to fulfill active component MAW sourcing and combatant commander operational requirements.

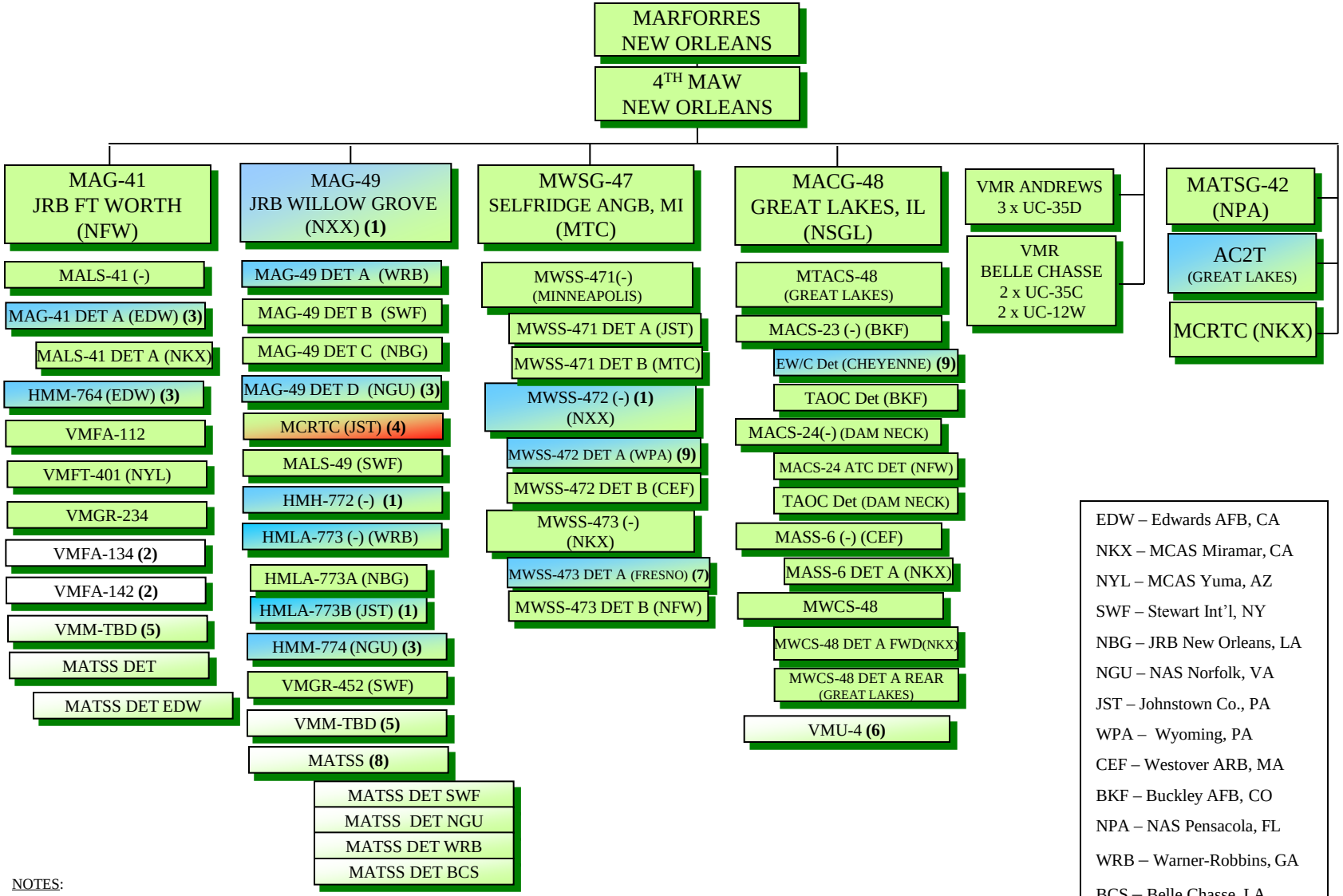
4th MAW OCO support includes individual and unit contingents of RC Marines dedicated to serving both in OEF and along our six LOOs. As an example, HMM-774 is deployed ISO SOUTHCOM TSC CONTINUING PROMISE 10, where it is providing humanitarian assistance to Central American and Caribbean Nations. 4th MAW VMGRs will deploy to support EUCOM's TSC Black Sea rotation. RC Marines continue to augment and reinforce CONUS-based PTP, exercises and training such as Enhanced Mojave Viper and WTI, and JTAC evolutions to ensure our Marines and sailors are fully trained prior to combat deployments.

During FY10 and FY11, the 2005 Base Realignment and Closure Commission (BRAC) law requires nearly 1,500 Marines, supporting six HQ, aviation and aviation ground support units to relocate. Also in FY10, VMU-4, the first RC UAV squadron, was activated in Yuma. Planning has begun for the FY13 and FY16 relocation of both RC HMMs as the units and Marines transition to the MV-22B.

Detailed, integrated planning for these and a host of other issues associated with RC transitions and AC support measures will sustain legacy aircraft and equipment during the AvPlan transitional years; minimize RC time-to-train in next generation aircraft/equipment; mitigate the impact of dislocating RC Marines from their current drill sites/units; and ensure RC Marines and their equipment will support theater requirements and our LOOs during the out years of the AvPlan. We will fully augment and reinforce the AC with an operational reserve wing under the Total Force construct.

The AVRIS has driven reorganization and management of the enduring, operational use of reserve aviation. Whether supporting the warfighter or providing realistic training in CONUS, reserve aviation will continue to support the AvPlan's emerging requirements by ensuring RC units and Marines have common equipment, training, and can be mobilized ready to augment and to reinforce the MAGTF.

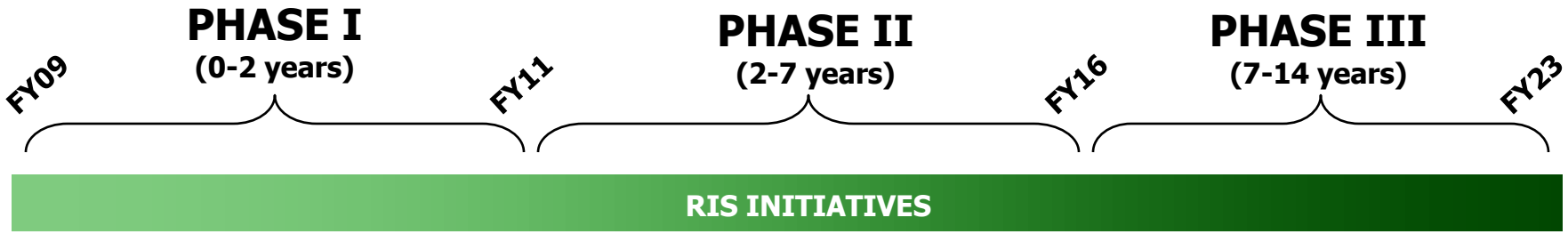
MARFORRES/4TH MAW ORGANIZATIONAL CHART (as of 1 Oct 2010)



EDW – Edwards AFB, CA
NKX – MCAS Miramar, CA
NYL – MCAS Yuma, AZ
SWF – Stewart Int'l, NY
NBG – JRB New Orleans, LA
NGU – NAS Norfolk, VA
JST – Johnstown Co., PA
WPA – Wyoming, PA
CEF – Westover ARB, MA
BKF – Buckley AFB, CO
NPA – NAS Pensacola, FL
WRB – Warner-Robbins, GA
BCS – Belle Chasse, LA
MTC – Selfridge ANGB, MI
NXX – Willow Grove, PA

NOTES:
1) MAG-49 HQ, HMH-772 (-), HMLA-773 DET B, AND MWSS-472 (-) WILL RELOCATE TO MCGUIRE AFB, NJ (FY11).
2) VMFA-134 & VMFA-142 CADRED UNDER MAG-41, WILL RETURN WITH JSF (LOCATION TBD).
3) RELOCATE DUE TO MV-22 TRANSITION; VMM-764 (FY13), VMM-774 (FY16). BASING PROPOSALS UNDER REVIEW.
4) DECOMMISSION FY11.
5) RC VMM-3 (FY17), RC VMM-4 (FY17). LOCATION TBD.
6) VMU-4 WILL BE STOOD UP WITH A DETACHMENT AT YUMA, FOLLOWED BY SQUADRON AT A SITE TBD, PENDING EIS AND MILCON CONSIDERATIONS.
7) FY11 RELOCATE TO NLC - LEMOORE, CA.
8) FY 11 ESTABLISH.
9) MWSS 472 DET A AND EW/C (CHEYENNE) WILL RELOCATE, SITE IS TBD.

AVPLAN RESERVE INTEGRATION STRATEGY (AVRIS) SUPPORTING MARINE AVIATION AND THE AVPLAN



- VMU-4 (RQ-7B) ESTABLISH
- MATSG 42
- AR STRUCTURE REALIGN
- TACC/MCCLAT REORGANIZE (ACT2)
- ATS IMPLEMENT/IOC
- WRB BRAC RELOCATE
- SITE SUPPORT MIRAMAR ESTABLISH

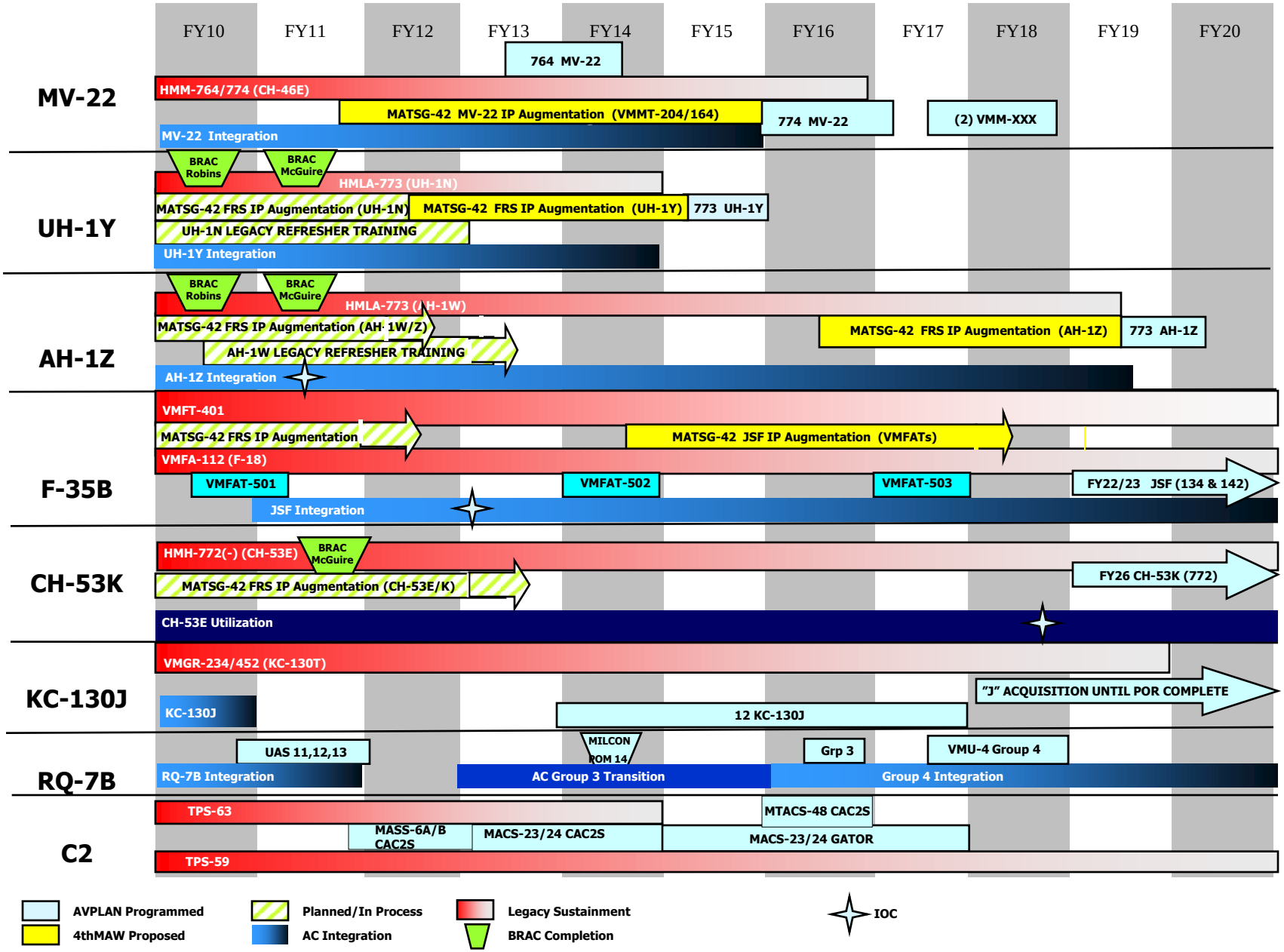
- JB M-D-L BRAC RELOCATE
- EW/C DET CHEYENNE REORGANIZE
- MV-22 ACCEPT
- UH-1Y ACCEPT
- KC-130J ACCEPT
- VMU-4 (Group 3) Transition
- F-5 UPGRADE/ TRANSITION/ SUNDOWN
- ATS FOC
- JSF MILCON COORDINATE

- LEGACY SUSTAINMENT (CH-53E, F-5, F-18A+, AH-1W)
- KC-130J ACCEPT
- UAS (Group 4) TRANSITION
- AH-1Z ACCEPT
- VMFA-142/134 REACTIVATE
- JSF ACCEPT
- CH-53K ACCEPT

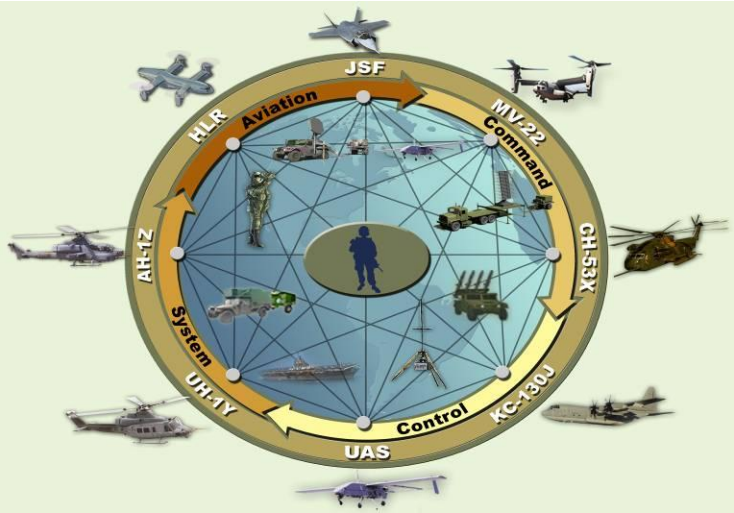
Reserve Aviation Strategic Goals

- Uninterrupted levels of support in all six functions of Marine aviation
- Manageable transition to next generation aircraft/equipment/personnel
- Mitigate legacy transitional shortfalls
- Augment and reinforce AC across 4th MAW (6) lines of operation

AVRIS IMPLEMENTATION TIMELINE



Section 5 --- Marine Air Command & Control System (MACCS) Plan



Marine Air Command and Control System (MACCS)

The ultimate objective of command and control is to affect the conduct of military action. Command and control includes activities such as gathering and analyzing information, making decisions, organizing resources, planning, communicating instructions and other information, monitoring results, and supervising execution.

The Marine Air Command and Control System provides the ACE commander with the agencies necessary to exercise command and control (C2) of aviation and air defense assets supporting MAGTF, naval, and joint operations. These agencies provide the ACE commander with the ability to execute the six functions of Marine aviation.

As one of Marine aviation's expeditionary enablers, the MACCS is rapidly deployable and scalable, ready for MAGTFs of any size and mission, from Special Purpose MAGTFs and MEUs to MEF-size major combat operations. To meet the challenges of the future, Marine aviation is pursuing aggressively enhanced capabilities of data fusion; improved modularity and mobility; and increased situational awareness. Central to our improvement efforts is enhancing the ability of the commander to make rapid and informed decisions using decision support tools and intuitive situational displays.

MACCS Transformation

MACCS transformation is focused on providing the aviation combat element commander with the most capable, effective and responsive C2 capability that technology, resources and personnel can provide. MACCS transformation will focus on three fundamentals: 1) expeditionary multi-function C2 nodes; 2) seamless MAGTF and joint force integration; and 3) full-spectrum warfare effectiveness. We will continue to assess our MACCS agencies for transformation to multi-mission operation centers to meet the Commandant's *Vision and Strategy 2025*. Transformation and success in the future fight requires capability increases in the following areas:

Deployability – Employ reduced operations and logistics footprint, improved modularity and commonality of equipment with a focus on EMW.

Flexibility – Distribute, via multi-function nodes, MACCS functions across the network; decentralize operations empowered by shared battlespace awareness; integrate open architecture suites with new technology and adapt to future environments.

Integration – Migrate to MAGTF C2 while enhancing and improving on our joint C2 interoperability.

Manpower and Training – Shift from highly-focused, single function specialties into broader skill areas.

Adaptability – Operate afloat, ashore, airborne, and during transitions.

Data Fusion – Correlate real-time, non-real-time, and near-real-time data from sensors, weapon systems, and C2 systems into a single display.

Focus on Aviation Command

All future enhancements to the MACCS will focus on the "command" aspect of aviation C2. By leveraging technological advancements and innovation to increase our aviation C2 capability, we ensure that the tactical air commander can execute effectively his battle command and battle management functions in support of the MAGTF commander.

Aviation C2 Family of Systems (FoS)

The AC2 FoS is a set of related, scalable, modular systems which the ACE can arrange or interconnect in various configurations to provide different capabilities. The mix of systems can be tailored to provide desired capabilities, dependent on the situation or mission assigned.

The AC2 FoS is designed to:

- Be expeditionary and joint
- Operate in a distributed and network centric manner
- Fuse non-, near-, and real-time C2, intelligence, sensor and weapons information, and data to achieve shared awareness across the C2 network. It will attain rapid decision superiority enabling massed effects across the battlespace. The key characteristics of the AC2 FoS include:

Expeditionary - Highly mobile and transportable to support distributed forces with systems that are routinely sea-based to deny enemy access and provide area denial efforts.

Scalable - Modular and task-organized to provide various functions dependent on critical mission requirements across the spectrum of military operations.

Multi-mission - Mission-tailored, operational centers to perform multiple AC2 functions, change functions performed over time, provide task-organized components of all AC2 functions concurrently, and enable the distribution and phasing of control functions across the battlespace.

Data & Software Fusion - Fuse data from various sensors and C2 systems to provide an integrated tactical display. Real-, near-, and non-real-time data will be available throughout the AC2 FoS and shared with other C2, weapon, and sensors systems throughout the battlespace. The system will provide enhanced battlefield awareness and significantly reduce decision making time for commanders. The integrated tactical display will be augmented with an integrated software application capability enhancing command and control of MAGTF aviation assets.

Redundant & Survivable - The AC2 FoS will be available continuously for the AC2 system, including sensors, communications, and networks. The increased speed and tempo of future operations demands a system that provides the ACE commander the ability to manage air assets uninterrupted, even if the system is degraded or damaged.

Evolving Digital ACE - Digital & Voice Communications - The AC2 FoS will be capable of communicating digitally; this capability will ultimately extend to all Marine aircraft platforms, as well as to the extensions of the AC2; e.g., Tactical Air Control Parties (TACPs). The aviation C2 FoS will digitally receive, process and display requests; select the aviation asset(s) available to meet the request; and digitally transmit the mission data back to the requestor and the responding platform once assigned.

The AC2 FoS must have the ability to receive and transmit data with all MAGTF aircraft. By 2020, all units requesting immediate support from Marine aviation - whether requesting CAS, assault support, or any other immediate aviation mission - will be equipped with both the communication means and C2 application capabilities to send their immediate mission requests via digital data, augmented by voice if needed, to the AC2 FoS.

All Marine aircraft will have both the communications means and C2 application capabilities to exchange secure digital data information, augmented by voice:

- Between aircraft on a common mission (peer-to-peer data exchange)

- Between aircraft and the AC2 FoS (parent-to-child/child-to-parent data exchange)

- Between aircraft and all of those requestors who had an aviation mission assigned to them by the AC2 FoS (cross-peer data exchange)

- Digital data should be available to troop commanders and mission commanders embarked in assault support aircraft. Key to this effort will be to adjust Marine Corps C4I policies to mandate adherence to DISA-mandated NCID T-300 Quality of Service standards for communications.

Aviation C2 Family of Systems (FoS) (Continued)

Joint – Systems will be compatible and interoperable with other services' C2 systems and compliant with all joint mandates and standards, in accordance with CJCSM 3170.01F.

Network Centric - Enable information superiority resulting in an increase in available combat power through the attributes gained by networking of sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo operations, greater lethality, increased survivability, and self-synchronization.

Adaptive & Continually Enhanced – We will meet the challenges of new operational environments and emerging joint concepts, relentlessly improving to outpace enemy capabilities through a spiral process of innovation within a culture of continuous transformation. The key attribute of the AC2 FoS will be the common, open C2 and sensor architecture that facilitates continued adaptation and improvement.

Sensor Network Capable - The AC2 FoS will be capable of participating in all joint sensor networks for sharing information in a real and near-real time basis. This capability will be essential to ensure that the Marine Corps is a contributor to the Integrated Air and Missile Defense (IAMD) operating concept.

Netted Sensors/Sensor-to-Shooter - The AC2 FoS will provide sensor-to-shooter capability, allowing for rapid response against fixed wing and rotary wing aircraft, UASs, tactical ballistic missiles (TBMs) and cruise missile attacks. The networked sensors and sensor-to-shooter capabilities will enable emerging joint concepts, such as integrated fire control (IFC) and engage on remote (EOR). AC2 will contribute to strike operations by providing greater operational reach inland and expanding the netted sensor network of radars.

Aviation C2 (FoS) Concept of Operations

Aviation C2 Vision - The future MACCS will be organized, trained, and equipped to deploy and employ networked multi-functional agencies or operation facilities (OpFacs). It will be adaptable and capable of optimal functionality in any environment, whether afloat, transitioning ashore, or on the move. The systems will have a reduced footprint, be lighter, and have greater capabilities, allowing employment throughout the range of military operations. The future systems will be scalable for use at all levels from a SPMAGTF performing a non-combatant evacuation operation (NEO) in a permissive environment to a MEF fighting as a part of a joint or combined task force in a MTW. The AC2 FoS will provide the ACE commander the ability to direct joint and multinational task force air operations, when required, and provide desired tools to assist in command functions. It will have enhanced survivability and mobility by reducing the physical size and weight of its components and by creating redundancy for all critical functions.

2015 to 2020 AC2 Concept - Our AC2 concept of employment will utilize C2 operations centers with common C2 equipment capable of being configured from a man-portable version to a full ACE operations center. Sensors and weapons will be networked to be accessible from any C2 node. The AC2 FoS will facilitate the generation of a common tactical picture and its dissemination to all operators and tactical agencies. The AC2 FoS will be employed throughout the battlespace from the sea base to the deep battle area, as well as to CONUS-based forces providing a reach-back capability. All datalink and information assurance requirements will comply with joint standards.

Equipment - Common C2 equipment and technologies will replace the various systems used today. Commonality will help to reduce training time, simplify maintenance, supply and sustainment, and simplify the process of cross-training Marines. The goal is to be able to conduct any of the current functions of the MACCS using one suite of equipment and integrated applications.

Future MACCS Systems

Common Aviation Command and Control System (CAC2S): The CAC2S is the command and control component of the aviation C2 family of systems. The CAC2S capability will fuse real-time, non-real time, and near-real time data from sensors, weapon systems, and C2 systems into a single integrated display. The CAC2S will replace six dissimilar legacy platforms and provide an expeditionary and common joint air C2 capability for Marine aviation, employable from the sea base, shore, or air node. It will provide aviation command post, air defense, air support, and air traffic control capabilities.

CAC2S provides an opportunity to leverage technological advancements and increase aviation command capability in order to ensure that future tactical air commanders have the necessary tools and knowledge to employ Marine aviation in support of the MAGTF commander and joint force commander. The Deputy Commandant for Aviation is challenging the aviation community to expand capabilities that have been historically centered on platforms and systems.

Ground/Air Task Oriented Radar (G/ATOR): The G/ATOR system is a 3D short/medium range radar designed to detect low observable/ low radar cross section (LO/LRCS) targets such as cruise missiles, UAS, air breathing targets (ABTs), rockets, mortars, and artillery shells. G/ATOR replaces five aging or retired legacy radar systems and supports air surveillance, fire finding, and air traffic control missions. G/ATOR provides fire quality data that supports the integrated fire control concept and the extension of Sea Shield/Sea Strike landward in the littorals.

Composite Tracking Network (CTN): The CTN system is comprised of commercial-off-the-shelf (COTS) and non-development item (NDI) subsystems adapted from the USN Cooperative Engagement Capability (CEC). The CTN system will interface with C2 systems and sensors to provide the MAGTF and joint task force commanders a ground-based sensor netting solution that correlates sensor measurement data (target velocity and position) from local and remote radars into the CEC network. This data effectively will increase situational awareness by providing accurate, composite, real-time surveillance tracks to support Sea Shield and Naval Integrated Fire Control-Counter Air.

AN/MRQ-12(V)4 Communications Information System (CIS): The existing CIS were recently upgraded with new ground common radios and is currently undergoing a modernization effort to replace the aging MeshNet communications distribution system with Distributed Scaleable AccessNet (DSAN). The DSAN upgrade will provide a voice over internet protocol (VoIP) capability and greatly improve the supportability of critical voice communications to enable command and control.

Ten additional CIS vehicles will be produced and fielded to Marine Air Control Squadrons, and ten more fielded for use by the CAC2S program.

Mobile Tactical Air Operations Module (MTAOM): The MTAOM is a hardware integration effort consisting of selected components and subassemblies of the AN/TYQ-87(V)1 Sector Anti-Air Warfare Facility and other commercial off the self, government off the shelf, and non-developmental items to meet the functional capabilities of the AN/TYQ-23(V)4 Tactical Air Operations Module. The MTAOM is a self contained, vehicular mounted, suite of processor and digital communications equipment capable of supporting up to twenty air C2 operator workstations, supports both organic and non-organic sensor interfaces, and is capable of multiple tactical data links.

The MTAOM provides the Tactical Air Operations Center (TAOC) with an expeditionary transportable capability when used in conjunction with the AN/MRQ-12(V)4 CIS for voice communications.

JICO Support System (JSS): The Joint Interface Control Officer (JICO) Support System (JSS) is an emerging, automated, network-centric JICO tool set which supports the planning, management, and execution of the Multi-Tactical Data Link (TDL) Network (MTN). This in turn provides data for the development of the common tactical picture and common operational picture, and enhances the joint force commander's battlespace awareness.

Legacy C2 Systems

Currently-fielded systems provide an essential bridge capability until the next generation of aviation C2 systems are fielded:

Marine Air Command and Control System (MACCS) Sustainment: MACCS sustainment maintains the currently fielded systems to be ready, relevant, and capable to provide air command and control in support of current operations. Legacy sustainment is required to keep our existing systems interoperable with the Joint force and compliant with information assurance directives. Technology insertions and upgrades will modernized the MACCS to retain operational relevance until replaced by CAC2S.

MACCS sustainment-supported systems include: Tactical Air Operations Module, Sector Anti-Air Warfare Facility, Air Defense Communications Platform, Communications Information System, and Communications Data Link System.

Tactical Air Operations Module: The hub of the TAOC is the AN/TYQ-23(V)4 tactical air operations module (TAOM). The TAOM is a moveable, modular, automated C2 shelter designed to conduct AAW control, tactical ATC, and surveillance and ID functions for the MAGTF. The TAOM provides the operator with the functions of air surveillance, air direction, and air control. The TAOC's modular concept allows TAOMs to operate in standalone configuration or to be combined with other TAOMs to increase system capability and redundancy. The TAOC's modular concept allows the build up or scale down of system capacity without disrupting C2 operations.

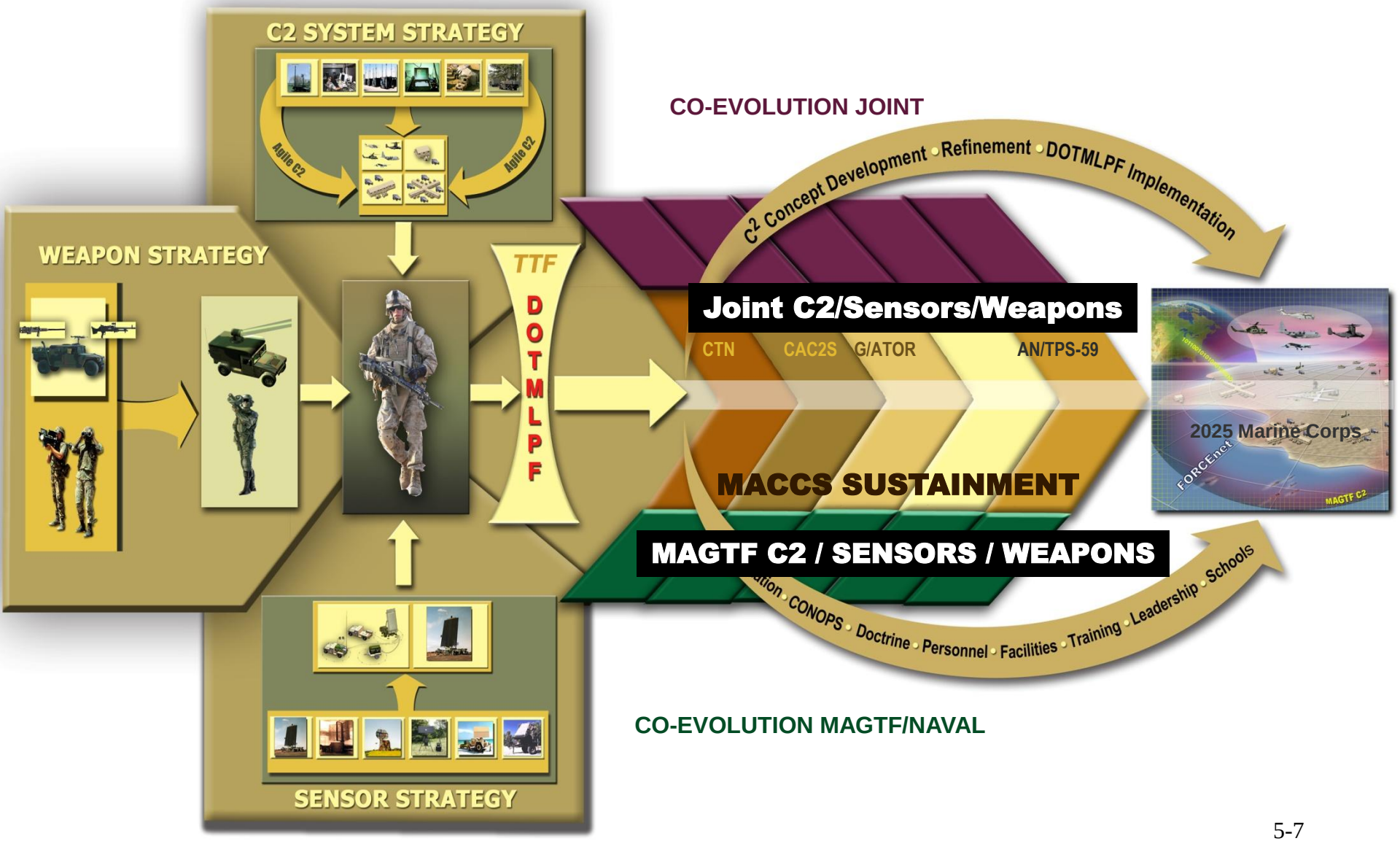
AN/TPS-59: The AN/TPS-59 is a proven, fielded system and is the MAGTF's only long-range surveillance radar. The existing configuration of this radar addresses both current and evolving threats in a single sustainable sensor. Given the outstanding capabilities and life remaining in the TPS-59(V3) radar the Marine Corps does not anticipate the need for new long range radar until the post- 2020 timeframe. The Marine Corps will sustain the current AN/TPS-59 radar system and address diminishing manufacturing resources and obsolescence to extend the life of the radar through Engineering Change Proposal (ECP).

Low Altitude Air Defense (LAAD): Near-term modernization of LAAD equipment is planned on the replacement of the Remote Terminal Unit with an enhanced laptop and replacing Ground Based Data Link – Extended (GBDL-E) with Joint Range Extension Application Protocol (JREAP) to interface with CAC2S. The Ground Based Air Defense (GBAD) Initial Capabilities Document was signed on 13 May 2009 and identifies gaps and the required capabilities of the Stinger replacement system. The GBAD analysis of alternatives is complete, pending the signature of CG MCSC, and determines the recommended solution to mitigate the capability gap versus Low Observation/Low Radar Cross Section threats. The Stinger Missile will undergo a SLEP in FY13/14. This will extend the Stinger shelf life ten years and will serve as a bridge to the future replacement LAAD weapon system. To align DCA long-term vision for USMC GBAD a Memorandum for the Record was signed identifying attributes that will be incorporated into the GBAD Replacement System Capabilities Development Document. These attributes include: universal multmission turret; gun; directed energy (DE); missiles; an open system architecture to allow for future material/technology solutions and accommodate C2 of the Joint Engagement Sequence "on-the-move" vice "at the halt." Dependent on technology maturity, DE provides near zero time of flight, low shot cost and deep magazine capabilities to counter the primary UAS threat.

Marine Air Traffic Control and Landing System (MATCALS)/Air Traffic Navigation Integration and Coordination System (ATNAVICS): MATCALS is a family of systems providing all-weather air traffic control (ATC) services for expeditionary operations ashore. MATCALS includes expeditionary control towers, navigational aids, radar, and communications systems.

The AN/TPN-31A ATNAVICS, an interim system, will replace the aging TPN-22 precision approach radar, the TPS-73 airport surveillance radar, and the TSQ-131 Control and Communications Sub-systems. ATNAVICS is scalable and HMMWV-transportable, and requires substantially less airlift (versus MATCALS systems) for intra-theater movement. ATNAVICS will be replaced by G/ATOR, CAC2S, and the Joint Precision Approach and Landing System (JPALS).

Aviation Command and Control Plan



MARINE TACTICAL AIR COMMAND SQUADRON (MTACS) PLAN

CURRENT FORCE: 3 ACTIVE AND 1 RESERVE SQUADRONS
(3) MRQ-12 CIS
(1) CDLS

FORCE GOAL: 3 ACTIVE AND 1 RESERVE SQUADRONS
(3) CAC2S CS
(1) CAC2S PDS (COC V2)
(1) CAC2S PDS (COC V3)
(3) CAC2S SDS

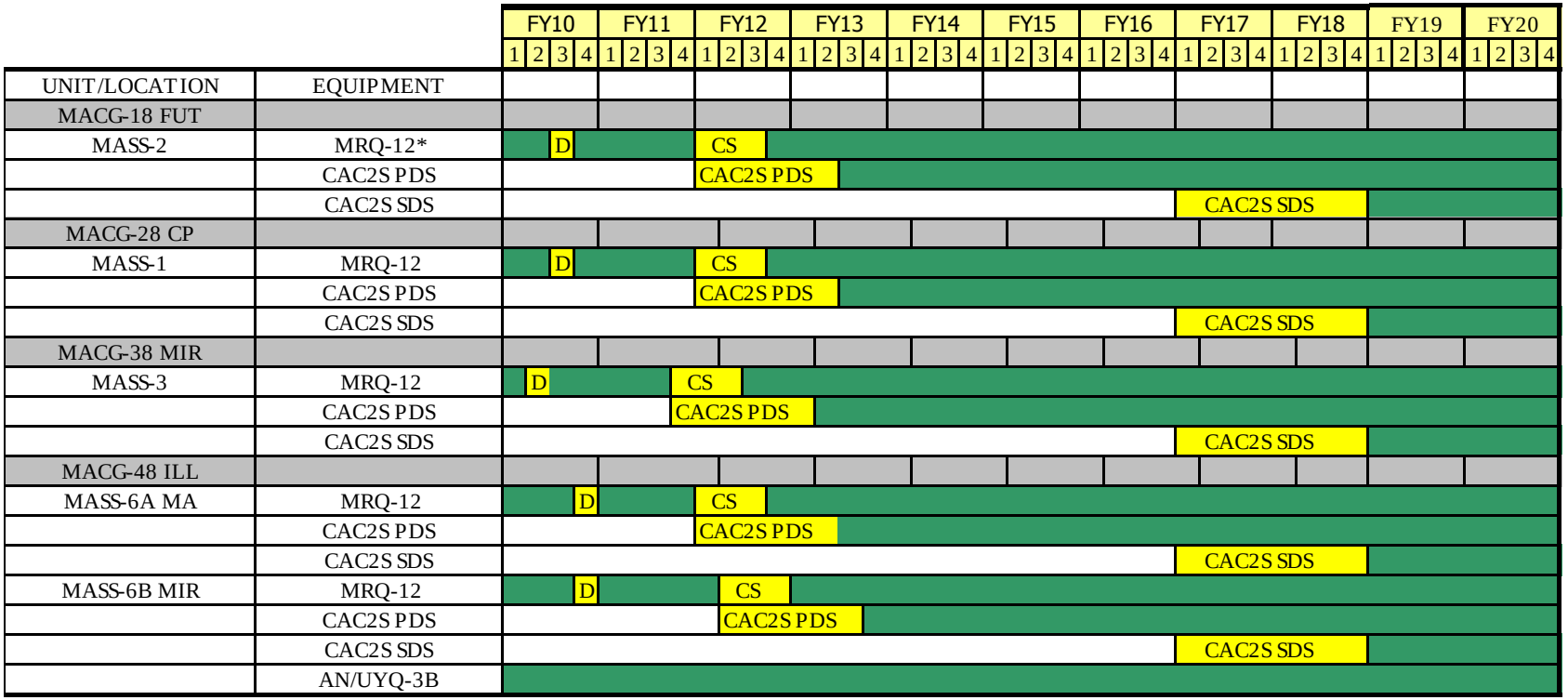
		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	EQUIPMENT																																															
MACG-18 FUT																																																
MTACS-18	MRQ-12			D				CS																																									
	CDLS									2																																							
	COC V2					V2																								CAC2S PDS																		
	CAC2S SDS																													CAC2S SDS																		
MACG-28 CP																																															
MTACS-28	MRQ-12			D				CS																																									
	CDLS									2																																							
	COC V2					V2																								CAC2S PDS																		
	CAC2S SDS																													CAC2S SDS																		
MACG-38 MIR																																																
MTACS-38	MRQ-12			D				CS																																									
	CDLS									2																																							
	COC V2					V2																								CAC2S PDS																		
	CAC2S SDS																													CAC2S SDS																		
MACG-48 ILL																																																
MTACS-48	MRQ-12				D				CS																																								
	CDLS									2																																							
	COC V2						V2																								CAC2S PDS																		
	CAC2S SDS																													CAC2S SDS																		

D - MRQ-12 RECEIVES ECP-20-22 WITH DSAN
CS - MRQ-12 MODIFIED WITH CAC2S COMMUNICATIONS SYSTEM ECP
2 - EACH MTACS RECEIVES A SECOND CDLS
V2 - COC CAPSET II FIELDED FY10-11AND MODIFIED TO CAC2S PDS IN FY17
CAC2S SDS FIELDED AND CDLS PHASED OUT

MARINE AIR SUPPORT SQUADRON (MASS) PLAN

CURRENT FORCE: 3 ACTIVE AND 1 RESERVE SQUADRONS
(8) MRQ-12 CIS
(2) AN/UYQ-3B DASC(A) IN RESERVES ONLY

FORCE GOAL: 3 ACTIVE AND 1 RESERVE SQUADRONS
(6) CAC2S CS
(4) CAC2S PDS
(2) CAC2S SDS



D - MRQ-12 RECEIVES ECP 20-22 WITH DSAN
CS - MRQ-12 MODIFIED WITH CAC2S COMMUNICATIONS SUBSYSTEM ECP

MARINE AIR CONTROL SQUADRON (MACS) TAOC/EWC PLAN

CURRENT FORCE:
3 TAOC &2 EWC ACTIVE, 2 TAOC RESERVE
TAOC: (1) TPS-59, (1) TPS-63, (4) TAOM, (2) ADCP, (1) SAAWF, (1) MTAOM)
EWC: (1) TPS-59, (2) TAOM, (1) ADCP, (1) SAAWF, (1) MTAOM

FORCE GOAL:
3 TAOC &2 EWC ACTIVE, 2 TAOC RESERVE
TAOC: (4) CACS2 CS, (2) CAC2S PDS, (2) CAC2S SDS
(1) CTN, (1) TPS-59, (2) G/ATOR
EWC: (3) CAC2S CS, (2) CAC2S PDS, (1) CAC2S SDS
(1) CTN, (1) TPS-59, (1) G/ATOR

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	EQUIPMENT																																											
MACG-18 FUT																																												
MACS-4	TPS-59					DPG ECP												SOFTWARE																												
	TPS-63/G/ATOR																																G/ATOR											
	CTN																																											
	TAOM/SAAWF									SOFTWARE																				CAC2S PDS															
	MTAOM																													CAC2S SDS														
	MRQ-12																													CAC2S CS														
MACG-28 CP																																												
MACS-2	TPS-59					DPG ECP												SOFTWARE																												
	TPS-63/G/ATOR																																G/ATOR											
	CTN																																											
	TAOM/SAAWF									SOFTWARE																				CAC2S PDS															
	MTAOM																													CAC2S SDS														
	MRQ-12																													CAC2S CS														
MACG-38 MIR																																												
MACS-1	TPS-59					DPG ECP												SOFTWARE																												
	TPS-63/G/ATOR																													G/ATOR														
	CTN																																											
	TAOM/SAAWF									SOFTWARE																CAC2S PDS																		
	MTAOM																									CAC2S SDS																		
	MRQ-12																									CAC2S CS																		
MACG-48 ILL																																												
MACS-23	TPS-59					DPG ECP												SOFTWARE																												
MACS-24	TPS-63/G/ATOR																																					G/ATOR				G/ATOR			
	CTN																																											
	TAOM/SAAWF									SOFTWARE																						CAC2S PDS												
	MTAOM																															CAC2S SDS											
	MRQ-12																															CAC2S CS											

TPS-59: DPC ECP - UPRADES TO THE DIGITAL PROCESSOR GROUP AND NEW ELECTRONICS SHELTER AND SOFTWARE UPGRADES
G/ATOR REPLACES ALL TPS-63 RADARS
TAOM/SAAWF WILL RECEIVE SOFTWARE AND COTS REFRESH
MTAOM AND MRQ-12 FIELDED TO PROVIDE BRIDGE MOBILITY SOLUTION UNTIL CAC2S IS FIELDED

MARINE AIR CONTROL SQUADRON (MACS) ATC PLAN

CURRENT FORCE MACS-1and MACS-2: 4 ATC DETS PER MACS ACTIVE DUTY
MACS-4: 2 ATC DETACHMENTS
1ATC DET RESERVE

FORCE GOAL: MACS-1and MACS-2: 4 ATC DETS PER MACS ACTIVE
MACS-4: 2 ATC DETACHMENTS
1ATC DET RESERVE

		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	EQUIPMENT																																											
MACG-18 FUT																																												
MACS-4	TPS-73	TRANSITION TO ATNAVICS																																G											
	TPN-22	TRANSITION TO ATNAVICS																																										
	TACAN																																											
	TSQ-131	TRANSITION TO ATNAVICS																																										
MACG-28 CP																																												
MACS-2	TPS-73	TRANSITION TO ATNAVICS																																G											
	TPN-22	TRANSITION TO ATNAVICS																																										
	TACAN																																											
	TSQ-131	TRANSITION TO ATNAVICS																																										
MACG-38 MIR																																												
MACS-1	TPS-73	TRANSITION TO ATNAVICS																																G											
	TPN-22	TRANSITION TO ATNAVICS																																										
	TACAN																																											
	TSQ-131	TRANSITION TO ATNAVICS																																										
MACG-48 ILL																																												
MACS-24	ATNAVICS																																	G											
	ATNAVICS																																											
	TACAN																																											
	TSQ-263	TRANSITION TO ATNAVICS																																										

G= G/ATOR TRANSITION BEGINS

LOW ALTITUDE AIR DEFENSE (LAAD) BATTALION PLAN

CURRENT FORCE:
2ND LAAD BN
3RD LAAD BN

FORCE GOAL:
143 A-MANPADS Fire Unit Vehicles
38 A-MANPADS Section Leader Vehicles

		FY 10				FY 11				FY 12				FY 13				FY 14				FY 15				FY 16				FY 17				FY 18				FY 19				FY 20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	EQUIPMENT																																											
MACG-28																																												
2ND LAAD	A-MANPADS Inc 1					1				1																																			
	STINGER MSL																	2																											
	Stinger / MSL Replacement																																	3											
MACG-38																																												
3RD LAAD	A-MANPADS Inc 1					1				1																																			
	STINGER MSL																	2																											
	Stinger / MSL Replacement																																	3											

NOTE 1: A-MANPADS INCREMENT 1 VEHICLES WILL BE FIELDED SIMULTANEOUSLY TO BOTH UNITS.
NOTE 2: SERVICE LIFE EXTENSION TO THE EXISTING STINGER MISSILE
NOTE 3: IOC FOR THE STINGER MISSILE REPLACEMENT IS ESTIMATED TO OCCUR IN FY18

Section 6 --- Marine Unmanned Aircraft System (UAS) Plan

Marine Unmanned Aircraft System (UAS) Plan

Unmanned aircraft systems increase the lethality and effectiveness of our air-ground team by extending our influence over time and space on the battlefield. The persistence and reach of our current UAS are key characteristics that provide improved aerial reconnaissance and command and control capability exceeding that of manned aviation assets. The near future will see these characteristics expand to also include strike, electronic warfare, and combat logistics. The MAGTF will directly benefit from improving aviation support as we find new ways to put our nation's technologies into the hands of Marines.

The rapid expansion of these technologies demands significant adaptation in organizational, policy, and doctrine within the Marine Corps and naval service. These include the addition of personnel and units, new primary MOS fields, and revision and creation of doctrinal publications and tactics, techniques and procedures (TTPs).
* Note: Properly termed "Unmanned *Aircraft System*" or UAS by joint doctrine, the VMU squadrons employing these systems have retained the description of "Unmanned *Aerial Vehicle*" squadrons.

Concepts

Marine commanders rely on UAS from every level of our family of systems (FoS) to both preserve manned aviation assets as well as shape their battlespace. Battalion-level units will continue to use the smallest systems (Group-1) as an organic aerial reconnaissance and surveillance asset. The VMU squadrons will employ the larger and more complex systems (Groups 3 and 4) via a common Ground Control Station (GCS) architecture to provide task-organized support to the MAGTF. The RQ-7B will be replaced by a larger Group-4 system with greater capabilities that include targeting, strike, intelligence collection, electronic warfare, data networking and communications relay.

Capabilities

Aerial reconnaissance is currently supported with electro-optical and infrared (EO/IR) full-motion video data that is fed to the warfighter via secure network or down-linked via systems such as VideoScout and One System Remote Video Terminal (OSRVT).

Kinetic and non-kinetic EW capabilities will be incorporated into the RQ-7B and its replacement. Command and control is currently being augmented through a radio relay capability with the RQ-7B Shadow. The development of communications payloads such as Collaborative Online Reconnaissance Provider Operationally Responsive Attack Link (CORPORAL) will increase access to command data networks for units in the battlefield.

The Marine Corps is a key participant in the joint proof of concept effort for increasing remote sense-and-avoid capabilities. Successful evaluation of this capability will lead to greater access to airspace in the vicinity of UAS training locations across DoD.

Organization & Manpower

Organizational changes are providing more flexible and responsive support to the MAGTF. Each VMU squadron has been reorganized to provide three RQ-7 detachments to the fleet. In addition to the stand-up of VMU-3 in September 2008, the Marine Corps is standing up VMU-4, a reserve UAV squadron. By 2012, additional structure of 81 Marines to support nine STUAS systems will be added per active duty VMU.

A UAS Officer Primary Military Occupational Specialty (PMOS) has been established. This will permit skilled aviation professionals to bring valuable MAGTF expertise to the expanding community as well as provide continuity through retention, development, and integration of their UAS experience. Command staffs and training organizations will now have a source of expertise for maximizing effective employment of UAS within the MAGTF. The role of our SNCOs within the UAS field will be expanded into increased operational roles in order to meet the high demand for tactical UAS support.

Platforms

Current initiatives for development and procurement of UAS platforms include:

- SUAS (Small UAS) requirements continue to be met by joint Group-1 programs such as RQ-11 Raven and Wasp III.
- STUAS (Small Tactical UAS) will IOC in 2013. The Integrator (a Group-3 system) will replace ISR services currently provided by Boeing/Insitu using the smaller Group-2 sized Scan Eagle system.
- MCTUAS (Marine Corps Tactical UAS) requirement is currently being supported by RQ-7B Shadow (a Group-3 system), but will be replaced in FY16 by a larger Group-4 system.
- The future Group-4 MCTUAS will provide a highly capable and expeditionary system with strike, ISR, and EW capabilities.
- Contract Cargo UAS will be fielded for user assessment in 2011 and provide logistical support to company-sized forces in the most forward positions in a combat zone. A follow-on program of record will replace this contract with an IOC planned in 2016.

USMC UAS Family of Systems Road Map

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022

Capabilities…

MCTUAS

MEF/MEB Support
(Organic to VMU)

FORCE APPLICATION & BATTLESPACE AWARENESS
All WX 1350 nm radius 240+knots 10+hours TOS

RQ-7B Shadow

RQ-7B Shadow
Objective 13 systems
(3 per VMU + 1 T&E)

SRP

WAAS

UGCS

Group-4
ICD JROCM 273-05

Electronic Attack, Persistent-Strike,
ISR/TA, (FMV,SAR/GMTI, WAAS),
SIGINT, Comm/Data relay,

LOGISTICS

OEF CARGO UAS UUNS

CARGO UAS

STUAS

MEB/MEU Support
(Organic to VMU)

BATTLESPACE AWARENESS
50 nm radius 80+knots 10+hours

Scan Eagle

OIF

OEF

EOC

FMV/SIGINT

ISR Contracts

STUAS (Group-3)
Objective 32 systems

Integrator

ISR/TA, FMV+SIGINT
Comm/Data Relay
Laser Designator

SUAS

Battalion Support
(Organic to Bn)

BATTLESPACE AWARENESS

RQ-14 Dragon Eye

RQ-11 Raven

RQ-11 Raven (Group-1)
Objective 497 systems

RSTA (FMV) EO/IR
Laser Pointer
Comm Relay

Wasp III

OEF/OIF UUNS

Micro UAS WASP III (Group-1) not yet a POR

RSTA (FMV) EO/IR

SUAS FIELDING

CURRENT FORCE:

81 X RQ-11 RAVEN SYSTEMS (I MEF)
83 X RQ-11 RAVEN SYSTEMS (II MEF)
9 X RQ-11 RAVEN SYSTEMS (III MEF)
4 X RQ-11 RAVEN SYSTEMS (MARFORRES)
58 X RQ-11 RAVEN SYSTEMS (MARSOC)
11 X RQ-11 RAVEN SYSTEMS (TRAINING)
55 x RQ-11 RAVEN SYSTEMS (MARCENT)
3 x RQ-11 RAVEN SYSTEMS (WRMR)

GOAL:

55 SYSTEMS IN MARCENT
372 SYSTEMS IN OPERATIONAL FORCES
17 SYSTEMS TRAINING & TESTING
75 SYSTEMS IN MARFORRES

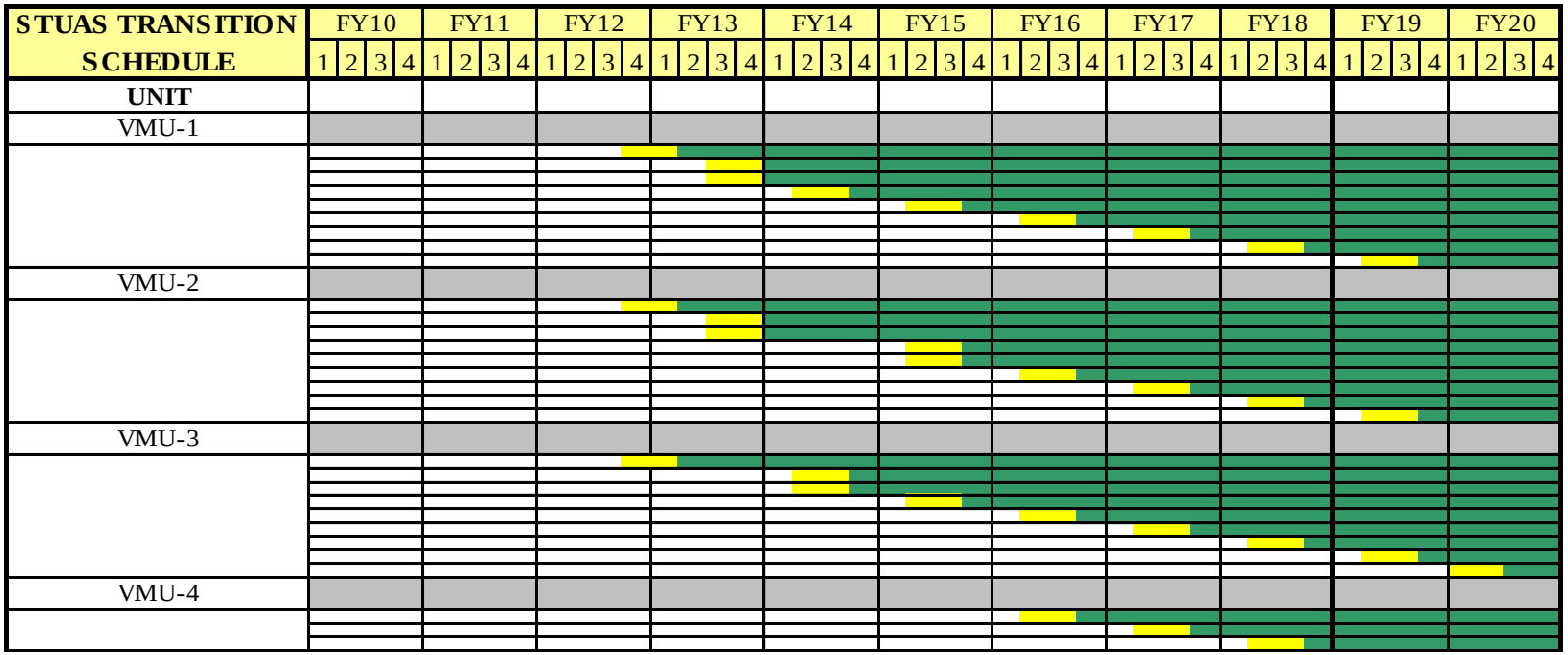
FIELDING SCHEDULE		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	**TOTAL SYSTEMS**																																											
I MEF	108	12				11				4																																		
II MEF	109	12				10				4																																		
III MEF	42	33																																										
MARFORRES	75	44				27																																						
MARSOC	58																																											
TECOM & MCSC	17	6																																										
MARCENT	55																																											
WRMR	3																																											

UAS FIELDING		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
RQ-11 RAVEN	SYSTEMS	411	459	467	467	467	467	467	467	467	467	467
	AIR VEHICLES	1233	1377	1401	1401	1401	1401	1401	1401	1401	1401	1401

STUAS FIELDING

CURRENT FORCE: N/A

GOAL: (3) AC SQDN x (9) INTEGRATOR SYSTEMS/DETS
(1) RC SQDN X (3) INTEGRATOR SYSYEMS/DETS
(1) TEST & EVAL SQDN x (2) INTEGRATOR SYSTEMS



UAS INVENTORY	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
SYSTEMS	0	0	3	7	10	14	18	22	26	29	32
AIR VEHICLES	0	0	12	28	40	56	72	88	104	116	128

TRANSITION	
OPERATIONS	

****Source selection complete: STUAS will be Insitu Integrator ****

****Basing plans are subject to change and further environmental review****

MCTUAS (RQ-7B SHADOW & GROUP-4) FIELDING

CURRENT FORCE: (3) AC SQDN x (3) RQ-7 SHADOW SYSTEMS

GOAL: (3) AC SQDN x (3) MCTUAS (GROUP-4) SYSTEMS
(1) RC SQDN X (3) MCTUAS (GROUP-4) SYSYEMS
(1) TEST & EVAL SQDN X (1) MCTUAS (GROUP-4) SYSTEM

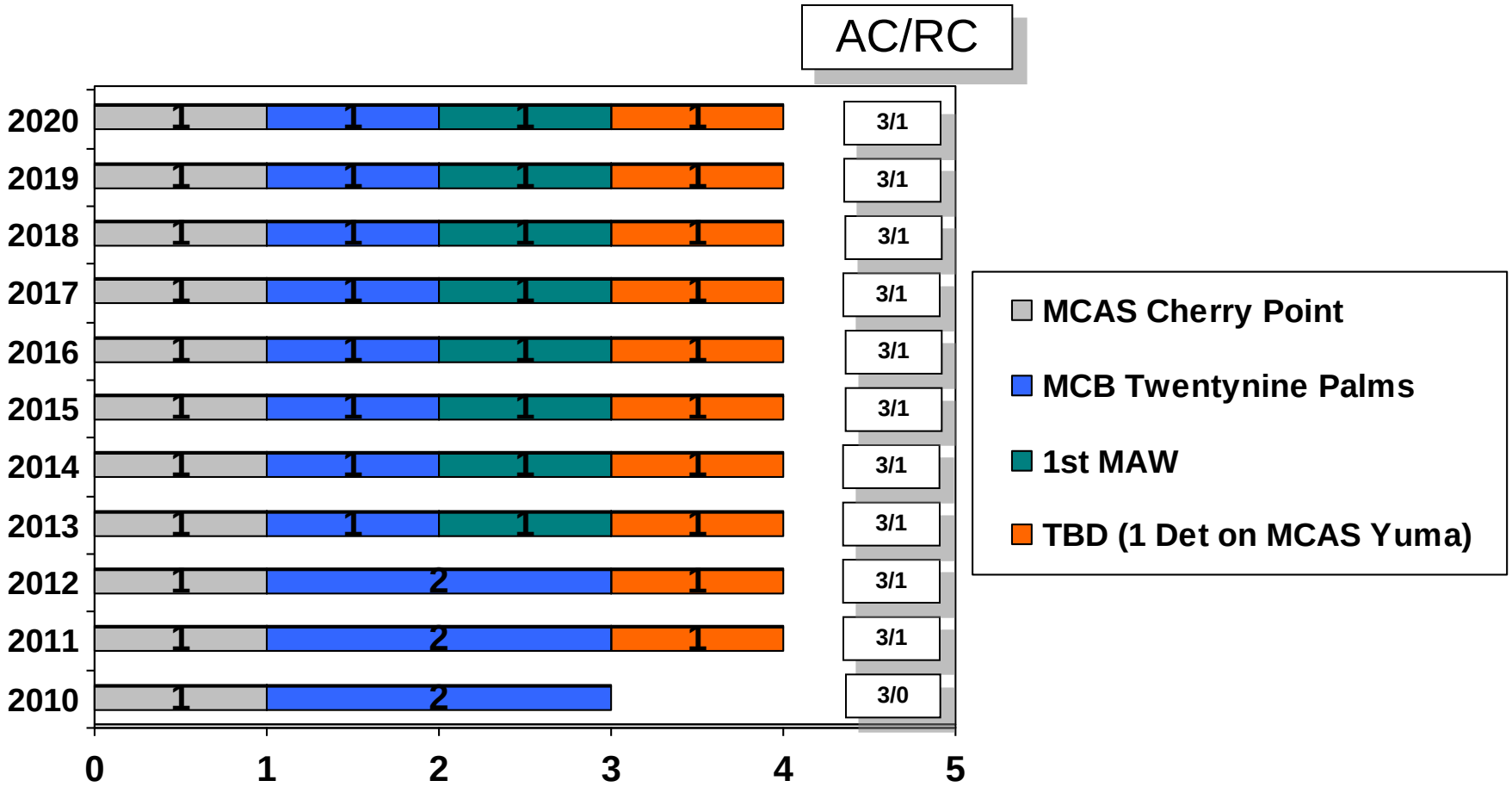
TRANSITION SCHEDULE		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIT/LOCATION	**RQ-7 SYSTEM #**																																											
VMU-1		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY17				FY18			
Twentynine Palms	#3																																											
	#1																																											
	#8																																											
VMU-2																																												
Cherry Point	#2																																											
	#5																																											
	#6																																											
VMU-3 (1)																																												
Twentynine Palms	#4																																											
	#7																																											
	#9																																											
VMU-4																																												
Yuma	#11																																											
TBD	#12																																											
TBD	#13																																											
DEPLOYED OCONUS																																												
	#2 (OEF)																																											
	#4 (OEF)																																											
	#3 (OEF)																																											
NAVAIR T&E																																												
Patuxent River	#10																																											

UAS FIELDING		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19-FY20
RQ-7B SHADOW	SYSTEMS	11	13	13	13	13	13	10	7	3	13
	AIR VEHICLES	44	52	52	52	52	52	40	28	12	52
GROUP 4 UAS	SYSTEMS							3	6	10	TBD
	AIR VEHICLES							12	24	40	TBD

(1) VMU-3 MOVES TO RELOCATE TO 1st MAW . TIME: TBD.

****Basing plans are subject to change and further environmental review****

MARINE UNMANNED AERIAL VEHICLE SQUADRON GEO-LOCATION



****Basing plans are subject to change and further environmental review****

Section 7 --- Marine Aviation Weapons and Munitions Plan

Joint Air to Ground Missile (JAGM): The JAGM (US Army lead service) will replace the aging inventory of Hellfire, TOW and Maverick missile systems with an enhanced range precision-guided munition (PGM) common to multi-service rotary- and fixed-wing aircraft and unmanned aircraft systems. The weapon will utilize a tri-mode seeker (semi-active laser (SAL), millimeter wave (MMW) radar, and imaging infrared (IIR)) and multi-mode warhead to defeat hardened, armored, and non-traditional stationary and moving targets. JAGM will meet the USMC requirement for AH-1Z all-weather, forward-firing, low collateral damage missile. Expected USMC IOC for the JAGM is FY16.

AGM-114 HELLFIRE: A series of HELLFIRE product improvements provide interim measures to address capability gaps that JAGM will close when fielded. While the AGM-114M is no longer being produced, the AGM-114N HELLFIRE retains the "M" model's fragmentation capability and provides a thermobaric capability with improved blast/impulse and enhanced lethality across the non-traditional target set. The trajectory-shaping software provides a flatter trajectory for the AGM-114N-5 for a more perpendicular impact and better penetration on specific target sets. The AGM-114K-2A incorporates a steel fragmentation sleeve on the AGM-114K shaped-charge warhead. Both the AGM-114N and AGM-114K-2A are in theater in support of OIF/OEF. The AGM-114P is the primary weapon on the KC-130J Harvest Hawk providing high altitude off axis capability. The AGM-114R will replace the AGM-114K, K2A and M with a dual-mode warhead for rotary wing and UAS platforms. AGM-114R IOC is FY13.

Advanced Precision Kill Weapon System (APKWS): APKWS will provide a fiscally responsible solution to fill a capability gap between costly anti-armor precision-guided munitions and less-costly unguided general-purpose rockets. APKWS is an enhancement to the currently-fielded 2.75-inch aircraft rocket system. APKWS involves placing a laser seeker onto existing rocket warheads, providing an excellent, low cost, mid-range weapon well-suited for the MOUT environment. APKWS provides increased kills over the more expensive and limited inventory of guided missiles, while its small warhead size minimizes collateral damage. APKWS successfully passed Milestone C and will IOC on the AH-1W and the UH-1Y in third quarter FY11. APKWS has been approved for a Joint Capability Demonstration Program (JCTD) with the Air Force and will be integrated in the AV-8B and A-10 platforms with IOC in third Quarter FY12.

GAU-21: The GAU-21 is fielded currently on the UH-1Y and CH-53D and is being fielded on the CH-53E. This weapon provides an improved .50 caliber defensive crew-served weapon system, common to all platforms, to replace the aging XM-218 and GAU-16 machine guns in the inventory. Legacy weapons are up to fifty years old, with declining safety, reliability and maintainability. The GAU-21 is enhancing the defensive fire capability for the CH-53D and E and the UH-1Y platforms with improved reliability, lethality, and rate of fire. IOC for CH-53E Ramp- Mounted Weapons System (RMWS) was achieved fourth quarter FY04. CH-53D left and right door gun systems completed testing and were fielded in FY09. CH-53E left and right door gun systems are scheduled for FY11.

Small Diameter Bomb II (SDBII): The Small Diameter Bomb (SDB) Increment II is the second increment of a Miniature Munitions (MM) weapons system capability. The first increment - the SDB Increment I All-Up Round (AUR) - is a 250-pound class, precision-guided, adverse weather munition with an associated MM carriage system that will provide increased stowed kills per sortie. SDB Increment II leverages SDB I and will provide the USMC F-35B Joint Strike Fighter (JSF) with a standoff attack capability outside of point defenses against fixed and moving targets. SDB Increment II will utilize a tri-mode seeker (SAL, MMW, IIR) to provide additional capability for the F-35 as an effective, day/night, adverse weather munition with a greater standoff capability. IOC for the SDB II in the F-35B (STOVL) is FY18.

Direct Attack Moving Target Capability (DAMTC): The DAMTC is the follow-on weapon system to the Dual-Mode Laser Guided Bomb (DMLGB) and Laser Joint Direct Attack Munition (LJDAM). It will upgrade the existing JDAM and GBU series of bombs. It will be a precision-guided GPS/INS and SAL seeker-capable weapon designed to counter the moving target threat. This weapon system will provide the warfighter with an enhanced dual mode-capable bomb. Expected IOC is 2nd Quarter FY12.

Laser-Guided Zuni (LGZ): The laser-guided Zuni is a proposed weapons program which would enhance the current inventory of 5.0" Zuni rockets with a laser capability. Much like the APKWS, the LGZ will involve placing a laser seeker onto existing Zuni rocket motors and warheads, providing an excellent, low cost, mid-range weapon well-suited for the MOUT environment. By using the existing stockpile of Zuni motors, warheads and the LAU-10 launcher, the fixed-wing warfighter will be able to capitalize on a low-cost/increased Ph/low-collateral damage weapon system. This will allow increased kills per sortie, and provide a better weapons-to-target match against soft/moving target sets, preserving the high cost PGMs for hard target sets. If appropriate funding is secured, this weapon system could be fielded by FY12.

Under Development

MV-22 Osprey Interim Defensive Weapon System (IDWS) Marine aviation is integrating an all-aspect, belly-mounted IDWS into the MV-22. The system is designed to provide all-quadrant suppressive fires and this mid-range weapon, well-suited for the MOUT environment, is operated by the crew chief/gunner from the aircraft cabin. The gunner uses a hand controller in conjunction with a video screen to control the weapon. The IDWS consists of a weapon turret, EO/IR sensor, gunner station, and associated weapons control/motor control units. A six-barrel 7.62mm GAU-17 is mounted in the weapon turret in the aft hellhole and the EO/IR sensor ball is mounted in the forward hellhole. The IDWS is procured as a mission kit, easily transferable from one MV-22 to another.

Harvest Hawk

AGM-114P HELLFIRE: The AGM-114P is an improved AGM-114K modified by JAMS which will provide the Harvest Hawk KC-130J an off-axis high-altitude capability. The Army provided to the DoN 40 AGM-114P missiles in July 2010. The Harvest Hawk is scheduled to deploy with the AGM-114P Hellfire in the fall of 2010. The "P" will be made a POR for future procurement when appropriate funding is secured.

Griffin Missile System: The Griffin missile, an element of SOPGM, was originally procured from Raytheon for fixed-wing users. The Griffin is a GPS/INS with terminal SAL seeker missile system launched from the KC-130J. Griffin and Viper Strike (VS) use common launch tubes. Griffin receives target location data before launch from a Battle Management System (BMS). Unique capabilities of the Griffin missile system include a demonstrated off-axis shot capability and height-of-burst fuze. It weights 34 pounds per missile, and has a range of six kilometers. The Harvest Hawk will deploy with Griffin in the fall of 2010.

Viper Strike: Viper Strike (VS) is a stand-off precision guided missile (SOPGM) evolved from the Army's Brilliant Anti-Armor (BAT) munition and is operational on the Army's SOCOM aircraft achieving operational success in OIF and OEF. It has a SAL seeker and is a precision low-collateral damage weapon for use in cluttered urban environments. It is a threshold munition for the Harvest Hawk KC-130J. The VS SOPGM, like the Griffin, is managed from the BMS and tube launched from the KC-130J common launch tubes. It weighs 43 pounds with a twenty kilometer range and a CEP <1m against fixed and moving targets. VS is expected to IOC FY11.

Section 8 --- Aircraft Survivability Equipment (ASE) Plan

Marine Assault Support ASE Plan

Rotary Wing/Tiltrotor ASE:

All forward-deployed assault support aircraft are 100% equipped with upgraded missile warning systems and decoy dispensers

- CONUS aircraft upgrades ongoing, with priority given to deploying units
  - Ongoing efforts to complete MWS sensors upgrade to latest B(V)2 configuration (Improved Detection (Pd) in cluttered environments)
  - Estimate completion of B(V)2 CONUS MWS upgrade, FY-13

Advanced ASE suite

- Priority given to most-vulnerable aircraft
  - CH-53E, CH-46E, 53D: Improve MWS, CMDS and install DIRCM
  - Improvements began Nov 08 OCONUS and are ongoing
- Expedite all other assault support aircraft
  - H-1, V-22 and KC-130: Improve MWS, CMDS and develop light weight DIRCM
  - Improvements for MWS and CMDS began Nov 08 for MEU squadrons

MV-22:
TTP: Reevaluate for new systems
NEAR TERM: MWS software drop OFP 30.24, FF Flares development complete. FF Buckets installs ongoing.
MID TERM: Upgrade MWS to B(V)2, Complete FF Installation. Develop and install advanced ASE suite controller.
LONG TERM: Install IRMWS and DIRCM Jamhead.

H-1:
TTP: Reevaluate for new systems
NEAR TERM: MWS software drop OFP 30.24, FF Flares development underway for H-1 Upgrades. Additional FF dispenser development ongoing for AH-1W.
MID TERM: Upgrade MWS to B(V) 2. Install FF buckets. Develop and install advanced ASE suite controller.
LONG TERM: Develop and install IRMWS and DIRCM. Develop visually degraded environment solution.

CH-46:

TTP: Reevaluate for new systems
NEAR TERM: MWS software drop OFP 30.24, FF Flares development complete. FF Buckets installs ongoing. Flight test ongoing for IRMWS and DIRCM Jamhead. Engine IR suppression system testing ongoing.
MID TERM: Upgrade MWS to B(V)2, Complete FF bucket installs. Begin installation of IRMWS and DIRCM Jamhead. Develop and install advanced ASE suite controller.
LONG TERM: Complete installation of IRMWS and DIRCM Jamhead.

CH-53:

TTP: Reevaluate for new systems
NEAR TERM: MWS software drop OFP 30.24, FF Flares development underway. Additional FF dispenser development ongoing. Installation of IRMWS and DIRCM Jamhead ongoing. Implement VDE Phase I solution via CSU.
MID TERM: Upgrade MWS to B(V)2, FF ALE development & Install. Complete installation of IRMWS and DIRCM Jamhead. Develop and install Advanced ASE suite controller.
LONG TERM: Complete installation of IRMWS and DIRCM Jamhead.

KC-130:

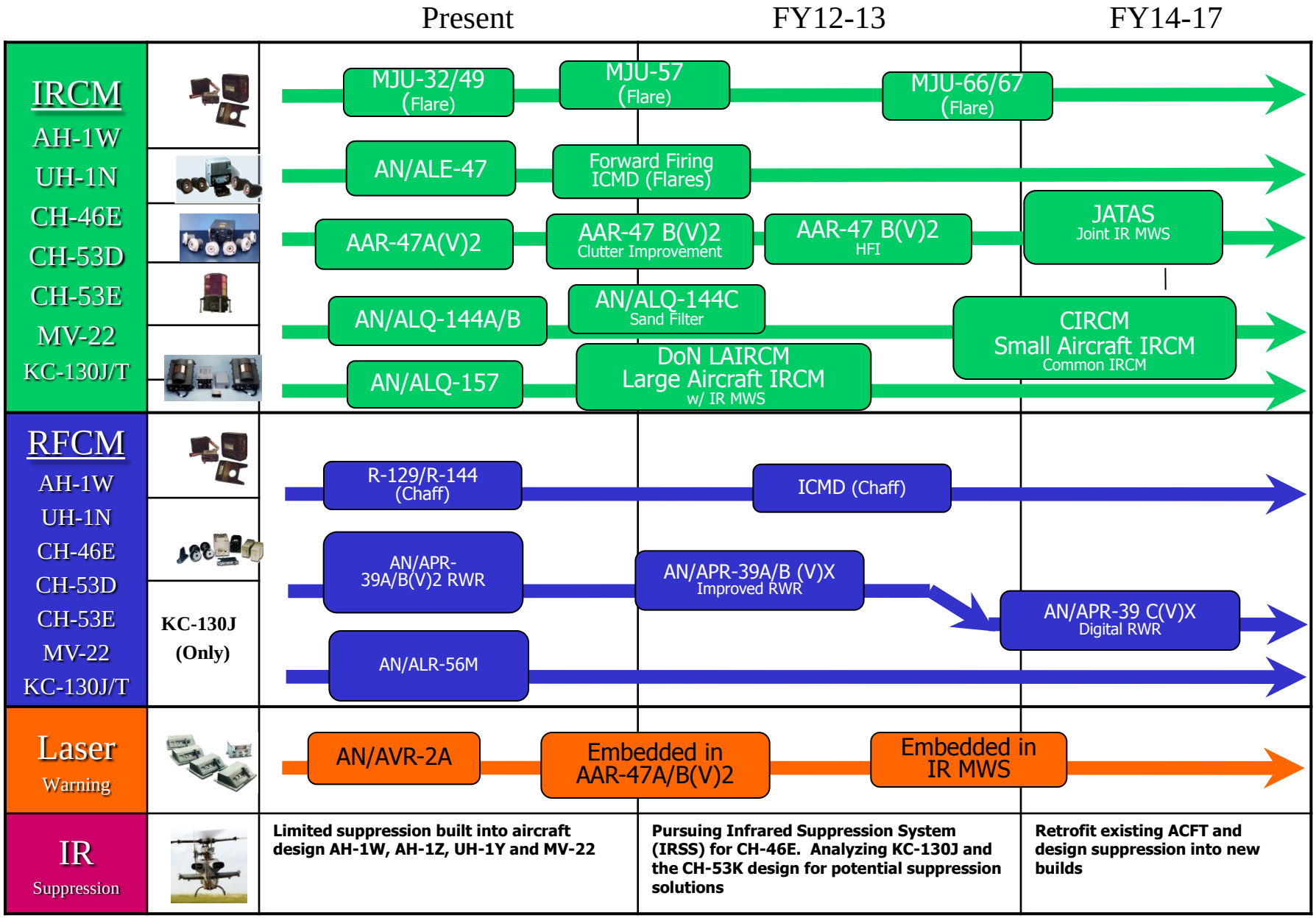
TTP: Reevaluate for new systems
NEAR TERM: MWS software drop OFP 30.24, DECM mods ongoing for KC-130T. FF Flare efforts ongoing for T and J.
MID TERM: Upgrade MWS to B(V) 2, Potential for IRMWS and DIRCM Jamhead.
LONG TERM: Install IRMWS and DIRCM Jamhead.

Chaff/Flares:

TTP: Reevaluate techniques for advanced threats, future AOR
NEAR TERM: MJU-57 now available for (KC-130), Testing MJU-50/206 for near term fielding.
MID TERM: Evaluating foreign multi-spectral device for USMC use.
LONG TERM: Develop techniques for using flares and DIRCM for imaging threats

NEAR TERM: Present
MID TERM: FY12-13
LONG TERM: FY14-17

Marine Assault Support ASE Roadmap



Marine Fixed-Wing ASE Plan

Fixed-Wing ASE:
Fixed-wing aircraft are 100% equipped with defensive ECM systems, decoy dispensers and RF warning systems.

Advanced ASE suite

- Priority given to most vulnerable aircraft
  - F/A-18 and AV-8B: Upgrade CMDS to ALE-47 configuration and explore DRFM.
- All platforms are evaluating mission data files for maximum effectiveness.

F/A-18:

TTP: Reevaluate for new systems
NEAR TERM: Explore feasibility of replacing ALQ-126B with DRFM.
MID TERM: Sustain ALR-67V2 for DMSM or upgrade to ALR-67V3.
LONG TERM: None.

AV-8B:

TTP: Reevaluate for new systems
NEAR TERM: Install ALE 47. Explore feasibility of replacing ALQ-126B with DRFM.
MID TERM: Continue ALE-47 installs. Sustain ALR-67V2 for DMSM or upgrade to ALR-67V3.
LONG TERM: Complete ALE-47 integration in H6.0 block.

EA-6B:

TTP: Reevaluate for new systems
NEAR TERM: Upgrading to ALE-47 counter measure systems.
MID TERM: Explore advanced jamming PODs.
LONG TERM: None.

F-35B:

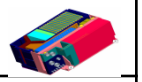
TTP: Continue development of TTPs
NEAR TERM: Evaluate for DRFM.
MID TERM: Advance Countermeasures development.
LONG TERM: None.

Chaff/Flares:

TTP: Reevaluate techniques for advanced threats, future AOR
NEAR TERM: Reevaluating all Mission Data files for most effective dispense patterns.
MID TERM: Evaluating Foreign Multi-Spectral device for USMC use.
LONG TERM: Develop techniques for using flares and DIRCM for imaging threats.

NEAR TERM: Present
MID TERM: FY12-13
LONG TERM: FY14-17

Marine Fixed-Wing ASE Roadmap

	Present	FY12-13	FY14-17
IRCM F/A-18 AV-8B EA-6B F-35B UC-35D UC-12W	 AN/ALE-39/47	MJU-63/65 (Flare)	ICMD (Flare)
	 AN/ALQ-126B	ASPJ (Block I IDECM)	DRFM (Block IV IDECM)
	 ALQ-126B and ALQ-162 imbedded in ALQ-164 (Sta. 4 only AV-8B)		
	 ALQ-99 (ICAP II)	ALQ-218 (ICAP III)	
RFCM F/A-18 AV-8B EA-6B F-35B	 R-129/R-144 (Chaff)	ALE-50/55 (Currently Navy Hornets)	
	 AN/ALR-67V(2) (F/A-18 and AV-8B)	AN/ALR-67V(3) (Currently Navy Hornets)	
	F-35B (Only)	Distributed Aperture System (F-35B)	
Laser Warning	 None		
IR Suppression	 **Suppression and signature information classified for F/A-18 and F-35B.**	**AV-8B and EA-6B not currently suppressed.**	

OSA ASE Plan

Operational Support Airlift (OSA) ASE:
Select OSA aircraft are equipped with defensive ECM systems, and missile warning systems. More aircraft will have ASE installed to counter man portable surface to air infrared missile threats.

UC-35D:

TTP: Continued use of current TTP.
NEAR TERM:
4th MAW NGREA funding appropriated in FY-10 to install ALE-57/AAR-47 on 2 x SMCR UC-35D
MID TERM: Acquisition of AAR 57/ALE 47 system for remaining 4 ACDU UC-35D aircraft.
LONG TERM: Sustainment of ASE systems.

C-20G:

TTP: None.
NEAR TERM: Acquire IRCM solution.
MID TERM: Install IRCM system with FAA Supplemental Type Certification.
LONG TERM: Sustainment of ASE system.

UC-12W:

TTP: Development of TTP.
NEAR TERM: Evaluate VX-20 DT-C2 ASE effectiveness test results.
MID TERM: Acquire and integrate 3rd ALE dispenser, enable forward firing kinematic flare retrofit for 6 x Block 1 aircraft..
LONG TERM: Acquire remaining UC-12W with three dispenser configuration.

NEAR TERM: Present
MID TERM: FY12-13
LONG TERM: FY14-17

Section 9 --- Tactical Air Control Party (TACP) Plan

Tactical Air Control Party Manpower and Equipment

Manpower

Due to aviation integration requirements, the USMC has increased the number of Joint Terminal Attack Controllers (JTACs) and begun the production of Joint Fires Observers (JFOs) to provide terminal controllers at each maneuver company and a qualified observer at the platoon level. The resulting increase of JTACs and production of JFOs allows aviation's precise firepower to be employed throughout the distributed battlefield.

The 2012 Uncompensated Review Board's (URB) approval of three Forward Air Controllers (FACs) / three JTACs per battalion (BN) with an assigned secondary MOS and career path for JTACs, coupled with the decision to provide JFOs to the platoon level defines the path forward for the BN TACP.

Ground Board 1-10 approved the movement of all GCE 0861 JTAC structure, less LAR and RECON, to the artillery regiments. The Division FSC will now be responsible for preparation and sustainment training for all non-FAC JTACs within the GCE.

Equipment

In 2002 and 2005, Urgent Universal Need Statements (UUNS) were submitted requesting the most current equipment available to support the deployed TACP teams. Subsequent to the second UUNS, the Marine Corps Equipment Review Group developed a capability set (equipment) for all Marine Corps TACPs based on the requirements defined in the UUNS. This action provided the basis for standardizing, expanding and institutionalizing the TACP suite throughout the Marine Corps.

The equipment within the TACP suite is separated into three capability areas; target location, designation and handoff (TLDH); situational awareness and night vision; and communications.

Tactical Air Control Party Equipment Continued…

Capability: Target Location, Designation and Handoff System (TLDHS)

TLDHS Blk II Strikelink

Strikelink is the software that runs on a ruggedized computer tablet that enables the Forward Air Controllers/Joint Tactical Air Controllers/Joint Fires Observer (FAC/JTAC/JFO) the ability to digitally communicate with Advanced Field Artillery Tactical Data System (AFATDS), Naval Fire Control System (NFCS), Mortar Fire Control System (MFCS), the AV-8B, F/A-18, F-16 (block 30, 40 and 50), A-10, Direct Air Support Center (DASC) and Link-16 enabled strike aircraft. StrikeLink also enables the DASC to be digitally interoperable with VMF-capable platforms. StrikeLink is integrated with Precision Strike Suite-Special Operations Forces (PSS-SOF) software and video downlink software that are also loaded on the rugged computer. Block II began fielding in Dec 07 and is approximately 70% complete. Fielding was interrupted slightly by requirement to provide systems directly to Marine Expeditionary Brigade Afghanistan.

Common Laser Range Finder (CLRF)/Vector 21

The Vector 21 (which is fielded with a Defense Advanced GPS Receiver and PVS-14) is a laser range finder that can provide a target location within 50m, day and night. The Vector 21 began fielding in 2005 and is 100% fielded.

Portable Laser Designator Rangefinder (PLDR)

The PLDR replaced the interim laser designator, the Ground Laser Target Designator II, beginning in January 08. The PLDR provides a laser designation capability out to 5000m at a reduced weight than previous lesser equipment. Redistribution of PLDRs and GLTD IIs is continuous to ensure units have a laser designation capability until production can increase to expected rates. The system is currently 71% fielded.

Infrared Zoom Laser Illuminator Designator (IZLID) 1000

The IZLID 1000 is a long-range infrared (IR) laser for pointing and marking used by forces on the ground and in the air. Fielding is complete.

Capability: Situational Awareness and Night Vision

AN/PVS-17

The AN/PVS-17 provides extended range night vision capability. It is issued as a component of the Vector 21.

Thermal Laser Spot Imager (TLSI)

The Kollsman TLSI with Enhanced Targeting Sight provides the capability to see the laser spot generated by the FAC/JTAC's laser designator or a self-lasing aircraft as well as providing thermal imaging capability. Fielding is complete.

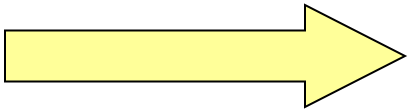
Thermal Imager

The Kollsman Long Range Thermal Imager provides the FAC/JTAC a long range target location capability for both day and night operations. Fielding to the operating forces is complete.

Video Scout (VS)

VS is a system procured in response to an UUNS and further expanded based on DoD ISR Task Force efforts. It provides the capability to view near-real-time video feed from unmanned aircraft systems or aircraft equipped with targeting pods. The system has the capability to record (and later manipulate) video feeds and contains a map based video recall features while being fully self-contained (terminal, receiver and antenna all in one piece of equipment vice numerous cable connections). The Video Scout will replace the ROVER in the TACP suite. Systems are operational in OEF and fielding is at 76% with a scheduled completion date of October 2010.

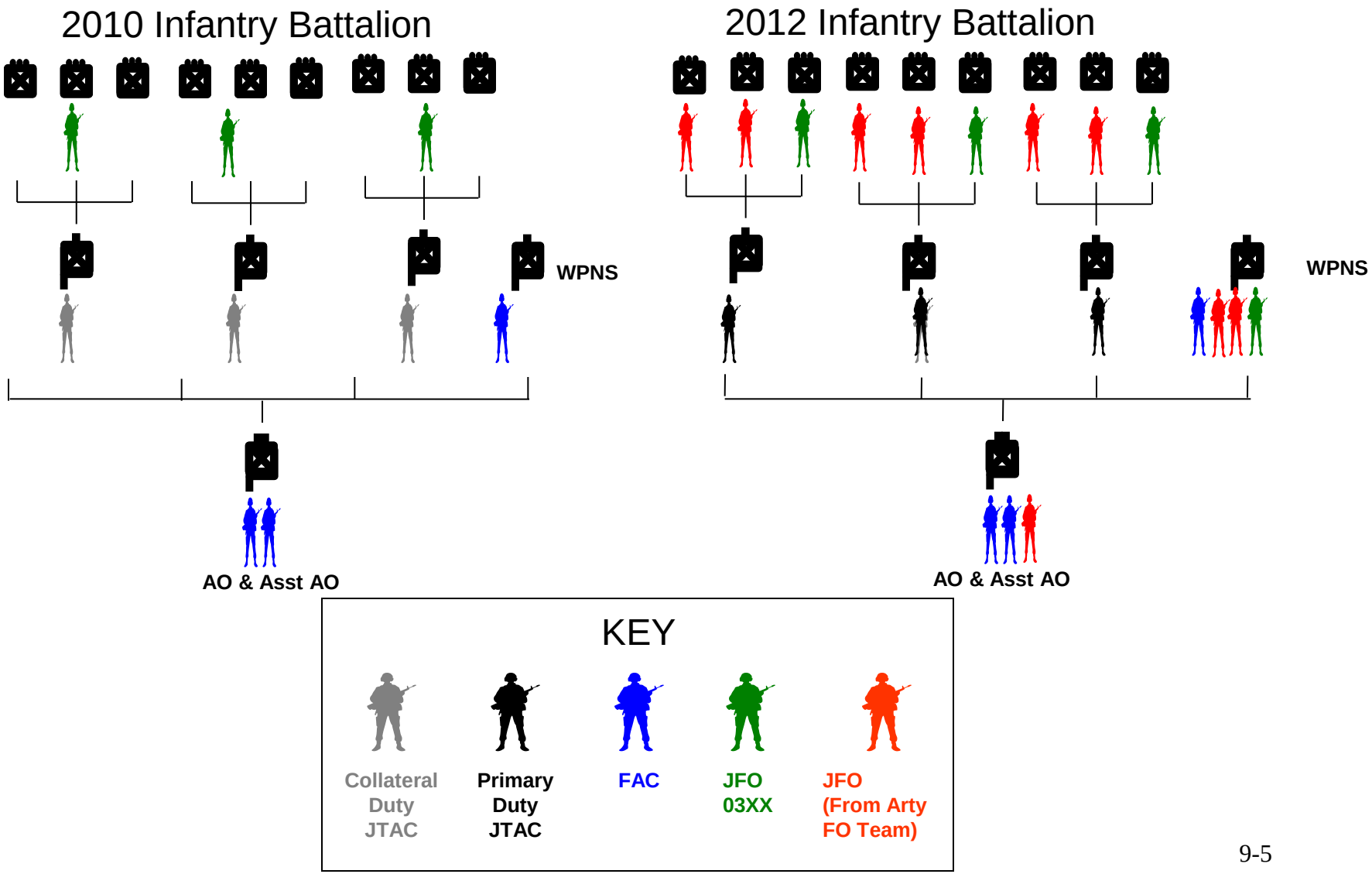
Driving the 2012 URB Increase



2008		2012 (202K)
Any ground combat arms SNCO or above	**Who serves as JTAC?**	0861 & 0321 Sgts and above
Collateral Duty	**Type of duty**	Primary duty with MOS billet fill requirement and separate line number on unit T/Os
(1) Air Officer (AO) (1) Assistant Air Officer/FAC (1) FAC (2) JTACs (3) JFOs	**Inf BN TACP**	(1) AO (1) Assistant AO/FAC (1) FAC (3) JTACs (13) JFOs No reduction of aviators or FAC production
A/C: 169 R/C: 62 Total Force: 231 JTACs were replaced annually	**JTAC Requirement**	A/C: 213 R/C: 72 Total Force: 285 JTACs serve in billet for 3 years
A/C: 196 R/C: 52 Total: 248	**FAC Requirement**	A/C: 207 R/C: 55 Total:262

FAC and AO tour lengths are IAW MCO 1301.25

2010 vs 2012 JTAC/FAC/JFO BN T/O



Tactical Air Control Party Equipment Update (cont.)

Capability: Communications

AN/PRC-117F
Primary TACP radio. Provides UHF, VHF and SatCom capability. Ongoing fielding throughout the Marine Corps.

AN/PRC-148
Similar capabilities of PRC-117 but in much smaller hand-held version. Ongoing fielding throughout the Marine Corps.

AN/PRC-150
Provides HF capability utilized for tactical air/helicopter request nets. Ongoing fielding throughout the Marine Corps.

Dual-channel headset
Provides FACs/JTACs the ability to monitor 2 channels and keep hands free to operate other fire support equipment. Ongoing fielding throughout the Marine Corps.

Equipment Summary
The planned distribution of the TACP suite is to all FACs and JTACs in infantry, tank, LAR and reconnaissance battalions, and to MARSOC. Supporting establishment schoolhouses will receive varying quantities of the equipment within the suite based on student ratios and plans of instruction. In many cases the operating forces, while they have some or all of the TACP suite components, have not grouped the equipment to provide the TACP suite capability. By distinguishing a governing Table of Assignable Materiel Control Number for the TACP suite and identifying its components in the Total Force Structure Management System, the operating forces will have the means to group and account for the components within their T/Es. The current requirement is for 332 suites of equipment.

Dual Channel Headset
Starting in July fiscal year (FY) 09, 1500 dual channel headsets were being fielded to the operating forces. Primary focus will be OEF and OIF.

AN/PRC-152
FY10 initiative. Replace all TACP PRC-148s with PRC-152s and gives the FAC and JTAC the same tactical radio fielded to the maneuver elements.

Future Initiatives

Remote Video Viewing Terminal (RVVT)
POM 10 initiative. Forward Air Controllers have identified the need for a smaller, hand-held variant of the VideoScout system that is man-portable and optimized for 72-hour dismounted patrols. The RVVT Program of Record will focus on developing a smaller, lighter, and less-complex ISR terminal to be used by both FACs and JTACs. Full rate production scheduled for first quarter of FY 13.

True North Module (TNM)
FY 10 RDT&E initiative. Due to magnetic interference, the digital magnetic compass (DMC) within current target location systems does not allow the operator to generate the coordinates needed for precision munitions.

The TNM will focus on achieving a targeting solution without the DMC.

Lightweight Designator
Operating forces have identified a need for a light-weight designator and daytime marking system. Current systems are utilized in static locations or on forward operating bases and are too large and complex for foot-mobile patrols. Currently seeking off-year FY11 initiative.

JETs
POM 12 initiative for the Joint Effects Targeting System. Divided into two efforts: Target Location and Designation System (TLDS) and Target effect Coordination System (TECS). Army PEO Soldier is the lead on the program. This will give the operator the capability to precisely locate, designate, and hand off mensurated coordinates through a digital network to fire support systems. Ultimately, the future targeting process will occur within one joint hand-held system. JETS is scheduled to be initial operations capable (IOC) in FY 16.

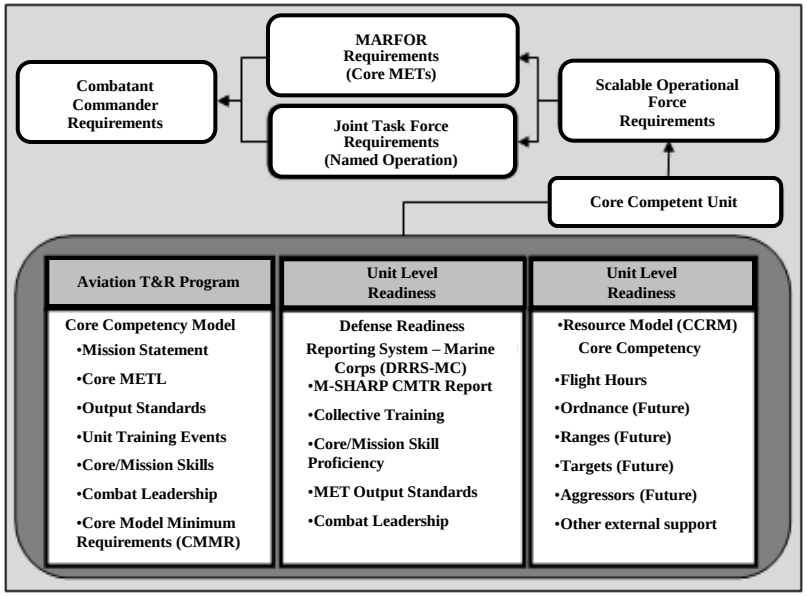
Section 10 --- Aviation Readiness and Safety

Aviation Training and Readiness Program

Marine aviation must be prepared to respond to operational tasking around the world. Its effectiveness is directly related to unit sortie generation capability, the ability to command and control aviation assets, and our ability to train mission skill-proficient crews and combat leaders in a standardized manner at levels commensurate with the aircraft and command and control Mission Essential Task List output standards.

Aviation Training and Readiness (T&R) Program (Today)

NAVMC 3500.14.B outlines the standards, regulations and policies regarding the training of Marine Corps aircrew, Command and Control, airfield emergency and operations services, and meteorological and oceanographic personnel. The aviation T&R Program implements a comprehensive, capabilities-based training system. This system provides mission skill-proficient crews and combat leaders to MAGTF and combatant commanders. The Marine aviation T&R program aligns with Department of Defense (DoD) and joint requirements by prescribing training standards required to develop core competent units that can fulfill operational requirements of combatant commanders. The T&R program has been updated to identify resource requirements for training and assist in HQMC planning and budgeting. The Marine aviation T&R program structure, Unit Readiness Reporting methods, and Training Resources Requirements' contribution to force readiness is depicted below.



The foundation of every Marine aviation community T&R is the Commandant of the Marine Corps-approved Core Competency Model. The Core Competency Model establishes the basic structure around which each T&R program is created and links the following:

- Mission Statement
- Mission Essential Task List (METL)
- Unit Core Capability (MET Output Standards)
- Core/Mission Skill Proficiency (CSP/MSP) and Combat Leadership (CL) Requirements
- Core Model Minimum Requirement (CMMR)

In 2000, the DoD established Defense Readiness Reporting System (DRRS) to make readiness reporting more objective, timely, and accurate. The DRRS initiative provides a "capabilities-based, adaptive, near-real time readiness reporting system" and requires a demonstrable link between Mission Essential Tasks (METs) and readiness reporting.

In 2004, the Office of the Under Secretary of Defense (OUSD) directed each service to execute both its specific mission essential tasks "to standard" and to execute its METL (mission objective) in its entirety. The OUSD further directed Commanders to assess the ability of the unit to execute specific METs, under specified conditions, as a "Yes," a "Qualified Yes," or a "No" in accordance with established criteria.

Aviation Training and Readiness Program (Future)

In response to the DRRS initiative, TECOM(ATB) has undertaken an effort to develop adjustments to the T&R Program in order to provide a clearer link between T&R event proficiency, the T&R Core Model and MET accomplishment, and required readiness reporting under the DRRS initiative.

Aviation Training and Readiness Program Continued…

Core METs

To date, all aviation communities have established unit Core METLs to replace T&R METs. These validated and standardized Core METLs are being incorporated into community T&Rs.

Mission Skills

All Marine aviation communities have established a framework, within T&R Program Manual guidance, whereby core skills are comprised of essential events that act as enablers for higher-order skills or "mission skills." Mission skills represent those skills that most closely reflect the ability to perform the METs. It is in the mission skills-to-MET correlation where a commander can best gauge the readiness of his unit to accomplish a specific MET. With this in mind, the T&R program shall adapt the mission skills concept for aviation communities governed by the T&R program.

MET to Core Skills/Mission Skills Matrix

The core skills / mission skills- to- MET matrix serves a valuable role in linking unit METs to core and mission skills, thus laying a firm foundation for both training program structure and accurate readiness reporting.

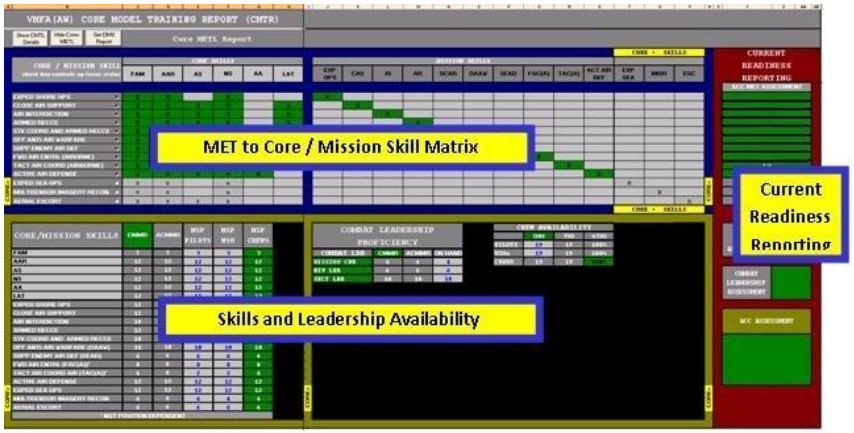
METL	CORE SKILLS 2000 PHASE							MISSION SKILLS 3000 PHASE				
	NS (H)	LDN	TN	LAT	SEC FORM	DIV FORM	TR TR	ALZ	CPL	AAR	RSR	AD
MCT 1.3.3.3.2 Conduct Aviation Ops From Expeditionary Shore-Based Sites	X						X	X				
MCT 1.3.4.1 Conduct Combat Assault Transport	X	X	X	X	X	X	X		X			
MCT 1.3.4.2 Conduct Air-to-Air Refueling	X		X		X	X	X			X		
MCT 1.3.4.2.1 Provide Aviation Delivered Ground Refueling	X										X	
MCT 4.3.4 Conduct Air Delivery	X		X		X	X	X					X

T&R Program Manual Readiness Chapter

TECOM(ATB) is re-drafting the readiness chapter in the T&R Program Manual chapter in order to more thoroughly describe aircrew readiness reporting in DRRS-MC and the Current Readiness Improvement Program (CR). This readiness chapter will describe the purpose and intent of both reporting venues as well as provide policy and guidance for reporting. Comparing monthly Training Ratings in DRRS-MC and aircrew training accomplishment depicted in monthly Sortie Based Training Program (SBTP) execution reports provide a more accurate and detailed depiction of unit training readiness.

T&R Core Model Training Report (CMTR)

In response to DRRS-MC and Current Readiness initiatives, TECOM(ATB) has updated the original CMTR and has created a working model that fulfills reporting guidance. Once the methodology is approved, commanding officers will be provided with access to a training assessment tool for use in both planning for future T&R training events and in readiness reporting.



DRRS-MC (Formerly SORTS & DRRS-Strategic)

HQMC PP&O Readiness Branch (POR) has incorporated SORTS and DRRS-S reporting with a single method, and application tool, named Defense Readiness Reporting System – Marine Corps (DRRS-MC). Among other metrics, DRRS-MC calculates a unit's training readiness via a T-rating and through the MET assessment. The CMTR, when fully functional, will provide a near real-time picture of a unit's aircrew readiness, as well as provide a ready-reference for the commander to use to better inform the commander's assessments in DRRS-MC.

Current Readiness Improvement Program

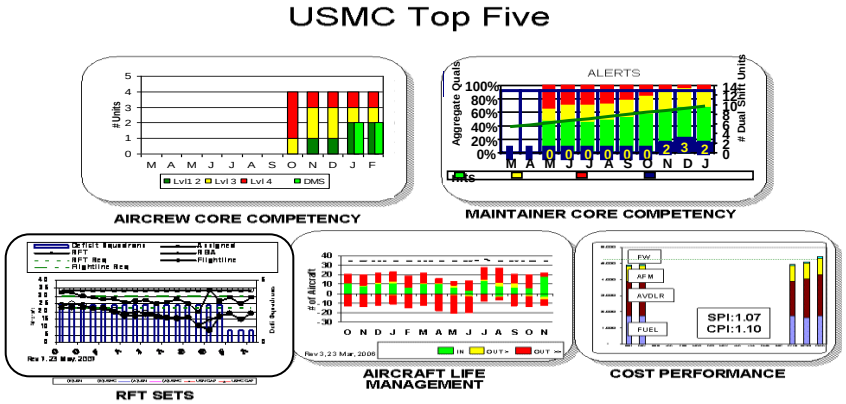
Current Readiness & Naval Aviation Enterprise Mission: Marine aviation commanders and leaders – in concert with the Naval Aviation Enterprise (NAE) – will plan, execute, and manage the current readiness (CR) process in order to maximize readiness of equipment and personnel. The focus must be on optimizing material resource allocations and expenditures while minimizing logistics downtime and delays. Leaders will conduct CR operations to align Marine aviation with enabling organizations. The purpose of this alignment is to predictably and effectively achieve required levels of readiness to produce core competent aviation units (squadrons / detachments) for warfighting missions.

Goals: The goal of Marine aviation is to attain and maintain combat readiness to support expeditionary maneuver warfare while at the same time preserving and conserving Marines and equipment. Embedded within this combat readiness goal is the ability to plan for crises and/or contingency operations, and the capacity to deploy rapidly, effectively, and efficiently on short notice.

- Increase aircraft readiness
  - Increase aircraft availability
  - Increase in-reporting (IR) rates
  - Decrease out-of-reporting (OR) rates
  - Reduce depot turnaround time
- Reduce workload on Marines
- Understand and manage costs
- Extend service life for legacy aircraft
- Achieve programmed service life for new platforms
- Improve health of organizational and intermediate level maintenance departments
- Increase sortie generation
- Increase combat power
- Increase reliability of aircraft & components
- Increase reliability of logistics process

The Goal: A Core Competent Unit

The most direct measurable output of the CR process is the production of **core competent units**. The design of CR, therefore, is to support mission essential task (MET)-based output standards that are consistent with a **core competent unit** (squadron or detachment).



Key Performance Indicators (KPIs): To create consistent and integrated performance-based measurements, type/model/series (T/M/S) teams determine which processes should be measured, what metrics would be used for the analysis, and which of those metrics are to be considered key performance indicators (KPIs).

Ready for Tasking (RFT): One of the main goals of the CR CFT is being able to provide the appropriate amount of RFT equipment resources to support a squadron's current mission.

Trained Maintenance Manpower: Central to producing RFT is the maintenance department's technical ability to maintain aircraft. Maintenance core competency for the maintenance department includes, at a minimum, qualifications and licensing (CDI, CDQAR, aircraft sign off, etc.).

Flight Hour Cost-Per-Hour: The goal of the NAE is to produce readiness and RFT aircraft while efficiently managing cost. In order to meet this goal, T/M/S teams must be aware and critical of the rate at which, and how, fiscal resources are expended.

Aircraft Life Management: Proper management of aircraft utilization ensures airframes attain the expected service life. This is accomplished by managing airframe usage within an acceptable range of life-limiting parameters (flight hours, fatigue, etc.).

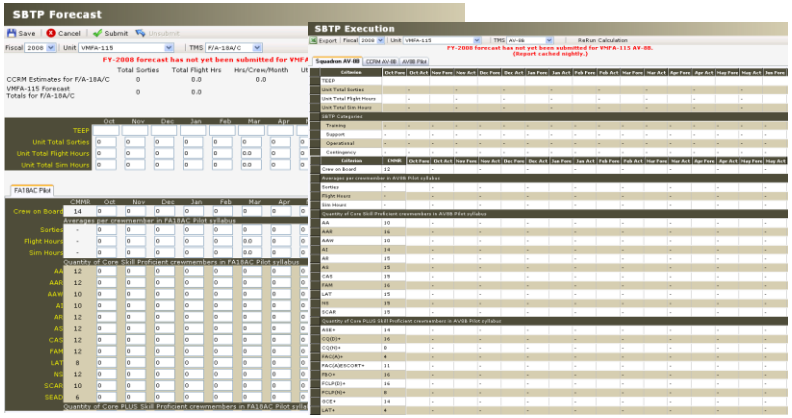
Sortie-Based Training Program

The Marine Corps SBTP allows squadron commanders to develop their unit's training exercise employment plan (TEEP) and unit training and readiness (T&R) requirements to train mission skill-proficient aircrews and combat leaders per their unit T&R core model minimum requirement (CMMR) in order to attain and maintain a T-2 level of readiness per NAVMC 3500.14B. A T-2 level of readiness allows a unit to fulfill its mission essential task output standard in support of a Marine Air Ground Task Force or joint force commander.

Annual Unit SBTP Submission. The annual unit SBTP forecast is developed at the squadron level, then reviewed and approved by the Marine Aircraft Group (MAG)/Marine Aircraft Wing (MAW)/Marine Corps Installations (MCI)/Marine Force (MARFOR)/DCA chain of command. DCA (APP-2) consolidates the MARFOR T/M/S inputs into a single Marine Aviation SBTP by T/M/S. Unit SBTP forecasts shall be submitted by squadrons NLT 01 August each year for the following fiscal year (FY). DCA (APP-2) utilizes the T&R T/M/S Core Competency Resource Models (CCRM) and the MARFOR T/M/S SBTP submissions for the final development of the Marine aviation tactical aircraft (TACAIR) FHP requirement for DCA approval prior to submission to OPNAV N43.

Monthly Unit SBTP Execution Submission. The monthly unit SBTP execution report provides squadrons and above the data required to track unit SBTP and FHP execution.

M-SHARP SBTP Forecast/Execution Reports



Marine Corps Sierra-Hotel Aviation Readiness Program (M-SHARP)

We have made great strides in the automation of objective, rules-based risk management within USMC aviation's flight scheduling and training management software. The next step on the automated training management roadmap for Marine aviation is the continued development and sustained use of M-SHARP by USMC aviation flying, MACCS, and METOC units. The fielding of M-SHARP has marked the divestiture of SARA and ATRIMS and the stand-up of a web-based, authoritative data source for Marine aviation training and readiness. M-SHARP leverages the Navy's web-based training management system and aviation data warehouse concept with an automated, Marine aviation-specific training and readiness system. M-SHARP will provide Marine aircraft wings with a user-friendly, web-based training management system. M-SHARP's robust scheduling, event tracking, and objective operational risk management capabilities are designed to help the commander prevent delinquent or unqualified individuals (or crews) from being scheduled for an event without requisite skills, proficiency, or supervision. TECOM(ATB) has assumed responsibility for the management of M-SHARP for Marine aviation.

Expeditionary airfield (EAF) and aircraft rescue and firefighting training will also be tracked and managed via M-SHARP. This will provide the MWSS commander with a tool to assess the EAF/ARFF sections training readiness even when Marines are "FAPed" to station.

METOC forecasters and maintainers utilize M-SHARP for baseline core competencies and utilization of the readiness tracking tool to give oversight and commander verification of overall competencies and readiness.

Flying Hour Program (FHP) and Core Competency Resource Model (CCRM)

Marine Corps Flying Hour Program Management (MCO 3125.1B)

The term "Flying Hour Program" refers to the allocation and obligation of funds from the Operation and Maintenance, Navy (OM,N) and Operation and Maintenance, Navy Reserve (OM,NR) accounts appropriated to the Marine Corps for the operation and maintenance of Marine Corps aircraft.

Marine Corps flight operations management is composed of two elements: the Sortie Based Training Program (SBTP) and the FHP. The SBTP is the commander's execution tool while the FHP, which provides policy, guidance, and responsibilities for the execution of the Marine Corps flight hours, is the SBTP's budgeting tool. It is important to stress that the SBTP is the foundation for all that we do, while the FHP is a measuring tool used by OPNAV to allocate resources. All commanders shall use all available resources to ensure their commands are trained per the current editions of the appropriate type/model/series T&R manuals. Key sections of the FHP order include:

- Marine Corps Flying Hour Programs
- Marine Corps Unit CCRM Guidelines
- Marine Corps Sortie Based Training Program
- Marine Corps FHP Reporting

Marine Corps Flying Hour Programs

Schedule A: Tactical Aircraft (TACAIR) FHP
Deployable active component (AC) fixed-wing, rotary-wing and tilt-rotor squadrons. Activated reserve component (RC) squadrons will also be funded from the gaining MARFOR TACAIR FHP.

Schedule B: Fleet Air Training (FAT) FHP
All Marine Corps fleet replacement squadrons.

Schedule C: Fleet Air Support (FAS) FHP
Deployable and non-deployable AC operational support aircraft (OSA), SAR, HMX-1, and VMX-22 aircraft.

Schedule D: Reserve FHP
Deployable and non-deployable RC FW/RW/TR squadrons and OSA aircraft.

Management of FHP Cost Growth

Due to increased operational tempo necessitated by Overseas Contingency Operations (OCO), USMC FHP Contract Maintenance Support (CMS) has experienced significant cost growth. In an effort to mitigate these increases, the Assistant Commandant of the Marine Corps released the '**Marine Corps Aviation Flying Hour Program Contract Policy and Guidance**' message (312009ZMar10). This message directs that CMS related reports be submitted quarterly and that each level of command reviews its funded contracts for efficacy and necessity and eliminate those without requirement. Proceeding as directed by the message will decrease CMS costs and allow the operating forces to regain diminished skill sets resulting from CMS.

Core Competency Resource Model (CCRM)

The CCRM directly links the FHP, T&R syllabi, and the readiness reporting system (SORTS and/or DRRS) in order to generate annual flying hour and sortie requirements (including training, support, or operational sorties) for maintaining required T-Level readiness ratings. The Deputy Commandant for Aviation (DCA) utilizes CCRM data as the primary guide/validation tool when providing annual TACAIR FHP inputs to the USN OP-20 budgeting document. CG, Training and Education Command (TECOM) Aviation Training Branch (ATB) is the custodian of the CCRM for each T/M/S. The CCRM and predictive scheduling tools are maintained on the TECOM website (http://www.tecom.usmc.mil/atb).

Marine Corps SBTP Guidance

Over the past two fiscal years, the Marine Corps FHP experienced a negative trend in measuring execution of SBTP baseline flight hours. The divergence between the annual CCRM training requirement and execution of SBTP flight hours has resulted in an unfavorable and pressurized budgeting environment and has put the T-2.0 flight hour requirement at risk and could lead to decreased USMC FHP budgets in the future if this negative trend is not corrected.

In order to promote the generation of accurate and executable SBTPs, HQMC Aviation, Aviation Plans, Policy, & Budget branch released the '**FY11 Marine Corps Aviation SBTP Guidance**' message (25200ZMAY10). This message defines CCRM and SBTP, describes the utility of a new predictive scheduling tool to assist in the development of a unit's SBTP, and outlines those factors that shall be factored into an accurate and executable SBTP.

Flying Hour Program (FHP) and Core Competency Resource Model (CCRM)

USMC FHP Readiness Level

USMC aviation expresses readiness using several metrics. These metrics are a useful tool for daily/weekly/monthly updating, while the SBTP is the basis for training goals and mission. The FHP numbers must not draw attention away from, or outweigh, Marine aviation's focus on sortie-based training; rather, they are a means to evaluating progress to combat-ready squadrons.

The T-Level metric is a threshold value used to describe readiness levels as belonging to one of four percentage tiers. It is the primary metric and baseline value used to express Marine Corps FHP readiness, in aggregate. Each T-Level represents a tier of combat readiness and indicates that a certain percentage of the Core Model Minimum Requirement baseline number for core skill proficiency crews or combat leaders has been achieved. The four FHP T-Levels and associated combat readiness percentages are as follows:

- T-1.0: 85% or greater combat readiness
- T-2.0: 70% - 84% combat readiness
- T-3.0: 55% - 69% combat readiness
- T-4.0: Less than 55% combat readiness

USMC FHP: T-2.0 Mandate

As stated in MCO 3500.14B, the **Marine Corps is required to maintain a minimum T-Level rating of T-2.0** (a 70% or greater combat readiness level). This level of readiness is the minimum required to rapidly and effectively deploy on short notice for OPLAN or contingency operations.

OP-20 Flying Hour Program (FHP) Budget

The OP-20 outlines the Navy / Marine Corps aviation readiness requirement and is a Department of the Navy (DON) planning document published by OPNAV N43 for the FHP several times per year.

The OP-20 FHP budget exhibit establishes the level of annual flying hours required by each T/M/S and outlines the necessary level of FHP funding that should be appropriated in order for the Marine Corps to meet its minimum readiness level of T-2.0. As per Marine Corps Order 3125.1B, these requirements are determined through the following process:

- Using CCRM output, Marine Forces Command and Marine Forces Reserve (MARFORCOM and MARFORRES) model peacetime tactical aviation training and flight hour requirements for each T/M/S squadron.

OP-20 Flying Hour Program (FHP) Budget continued…

- MARFOR requirements are validated with the T&R, CCRM and SBTP
- An aggregate USMC requirement is generated by consolidating squadron requirements
- Aggregated requirements are then submitted to OPNAV N432D (two years before the execution year) and incorporated with the requirements of the Navy's Fleet Response Plan (sortie-based flying hour requirement) into one OP-20 FHP budget exhibit

Funding of the OP-20

Once the OP-20 is generated, it is submitted to Congress through OPNAV N80 and the Secretary of the Navy Financial Management Branch (FMB).

Congress uses the OP-20 as guidance in appropriating funds for the FHP through annual defense appropriations bills. Once appropriated, FHP funds are distributed as follows:

- FMB distributes funds to the Navy's Budget Submitting Offices
- Funds are passed to the FHP's four Type Commanders
  - Commander, Naval Air Forces Pacific (COMNAVAIRPAC)
  - Commander, Naval Air Forces Atlantic (COMNAVAIRLANT)
  - Commander, Naval Reserve Forces (COMNAVRESFOR)
  - Commander, Naval Air Forces Europe (COMNAVEUR)
- The MARFORs then receive the funds in the form of an Operating Target (OPTAR) under the management of the appropriate comptroller
- OM,N and OM,NR funds are then obligated to the Marine Corps FHP's four schedules (TACAIR, FAT, FAS, and Reserve).

Because the USMC is growing a number of additional squadrons in order to meet CMC intent for the future, the associated flying hour requirements will also grow. As new units stand up in accordance with the AvPlan, O&M,N funding levels must increase to meet the demand of the new units.

Marine Corps Flying Hour Program Information

FY11 Core Competency Resource Model
TACAIR FHP requirement by T/M/S

T/M/S	Hours
AV-8B	23,639
CH-46E	17,448
MV-22B	24,158
CH-53D	6,269
CH-53E	21,069
KC-130J	18,394
AH-1W	26,872
UH-1N	8,926
UH-1Y	7,753
FA-18A/C	27,254
FA-18D	18,671
EA-6B	6,238
TOTAL	**206,691**









	FY11	FY12	FY13	FY14	FY15	FY16
TACAIR	206,691	213,000	216,955	217,346	218,963	222,960
Fleet Replacement Squadron	35,607	39,512	38,106	36,532	35,710	37,345
Fleet Air Support	25,932	26,122	26,073	25,996	26,464	27,037
Reserves	26,037	28,992	29,164	29,236	29,167	29,426
USMC FHP TOTAL HOURS	**294,267**	**307,626**	**310,298**	**309,110**	**310,304**	**316,768**

Marine Aviation Aircraft Inventory

Tactical

T/M/S	AVG AGE OF FLEET	PMAI PRIMARY MISSION
AH-1W	20	119
UH-1N	36	36
UH-1Y	1	39
CH-46E	42	96
MV-22A/B	3	104
CH-53D	40	32
CH-53E	22	118
AV-8B	13	98
F/A-18A/A+	24	56
F/A-18C	17	192
F/A-18D	16	60
EA-6B	27	56
KC-130T	21	24
KC-130J	5	44
TOTAL		1074

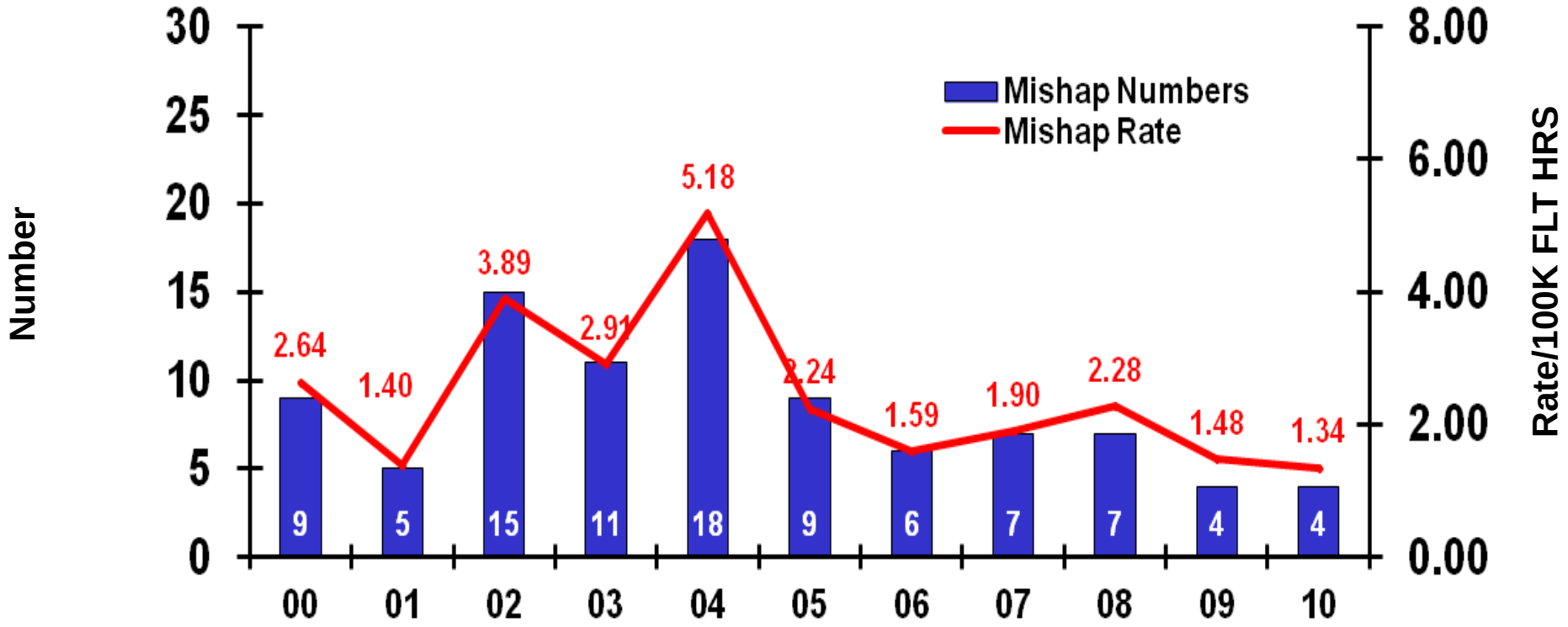
Other

T/M/S	AVG AGE OF FLEET	PMAI PRIMARY MISSION
AH-1Z	1	5
HH-1N	38	0
UH-3H	42	0
HH-46E	40	3
VH-3D	35	8
VH-60N	22	6
TAV-8B	21	0
F/A-18B	24	0
F-5F	31	0
F-5N	32	0
C-20G	15	5
C-9B	34	17
UC-12B/F	29 / 23	17
UC-35C/D	10 / 6	12
T-34C	32	0
TOTAL		73
GRAND TOTAL		1147

Aircraft Inventory Terminology

PMAI — Primary Mission Aircraft Inventory: Aircraft authorized to a unit for performance of its mission. Defined by CJCS INST 4410.01B and OPNAVINST 5442.8.

Data obtained from PB-11 APDF Ver 105 RMD 700 (dtd 28 Jan 10)



	28 Sep 10	28 Sep 09
CLASS A FM/FM RATE FY COMPARISON:	4 / 1.34	4 / 1.50
FY09 MISHAPS/MISHAP RATE:	4 / 1.48	
10-YEAR AVERAGE (FY00-09) MISHAPS/MISHAP RATE:	9.1 / 2.58	

Manual Version / Updates:

ANTTP – Air Naval Tactics, Techniques, and Procedures

T/M/S	Class	Current ANTTP	Last Conference	Next Conference
CH-46E	U	NOV 08	JUN 10	
CH-53 D/E	U	NOV 08	JUN 10	JUN 12
AS TACSOP	U	SEP 08	MAY10	
AH-1 W/Z	U	JUL 09	JAN 09	JAN 11
UH-1 N/Y	U	JUL 09	JAN 09	JAN 11
USMC RW	S	JUL 09	JAN 09	JAN 11
MV-22	U/S	JUL 09	FEB 09	FEB 11
KC-130 T/J	U/S	SEP 08	JAN 10	
AV-8B	U/S	SEP 08	FEB 10	FEB 12
FA-18	S	MAY 05	JUN 04	TBD
EA-6B	S	MAR 08	FEB 10	TBD
UAS	U	OCT 09	JUN 09	MAY 11

NOTES:

- AH-1 and UH-1 incorporated Y/Z information during last conference
- Rotary Wing TACSOP has been renamed Assault Support TACSOP
- JSF NTTP design / content is being staffed through the JSF community
- USN is the model manager for FA-18A and C, and EA-6B
- USMC's VMFAT-101 is model manager for F/A-18D.

Aviation T&R Manuals

T&R Manual	NAVMC/MCO	Complete	Update
Program Manual	NAVMC 3500.14B	20 May 09	EST Aug 10
FA-18	NAVMC 3500.50A	4 Mar 10	Next T&R Conf – Mar 13
AV-8B	NAVMC 3500.51	18 Jun 08	EST Sep 12
KC-130T	NAVMC 3500.52A	24 Dec 09	Next T&R Conf - Dec 12
KC-130J	NAVMC 3500.53	27 Oct 09	Next T&R Conf - Oct 12
MV-22B	NAVMC 3500.11B	10 Mar 10	Next T&R Conf – Jan 12
EA-6B	NAVMC 3500.1A	6 Oct 09	Next T&R Conf – Oct 12
AH-1W	NAVMC 3500.48A	24 Mar 08*	EST Sept 10
UH-1N	NAVMC P3500.49A	24 Mar 08*	EST Sept 10
AH-1Z	NAVMC TBD	N/A	EST Oct 11
UH-1Y	NAVMC 3500.20 Ch 1	24 Mar 08	EST Sept 10
CH-46E	NAVMC 3500.46A	31 Aug 09	Next T&R Conf - Aug 12
CH-53D/E	NAVMC 3500.47	18 Jun 08	Interim T&R Conf - 3 Dec 10
HH-46 SAR	NAVMC 3500.21	24 Apr 07	EST Nov 10
HH-1N SAR	MCO P3500.17	14 Aug 96	EST Jun 10
UC-35	MCO P3500.63A	April 10	TBD
UC-20	NAVMC 3500.96	Aug 10	TBD
F-5	NAVMC 3500.83	24 Dec 09	EST Dec 12
C-9	NAVMC 3500.31	24 Jul 07	EST Jan 11
ACE Battlestaff	TBD	TBD	*3rd Qtr, Fy10
UC-12	NAVMC 3500.30	April 10	TBD

Manual Version / Updates continued:

MACCS & Aviation Ground Support T&R Manuals

T&R Manual	NAVMC/MCO	Complete	Update
TACC Operations	MCO P3500.53	08 Feb 05	EST 3rd Qtr, Fy10
TACC 5900 Maintenance	NAVMC 3500.XX	TBD	EST 3rd Qtr, Fy10
TAOC Operations	NAVMC 3500.43	07 Feb 08	EST 3rd Qtr, Fy10
TAOC 5900 Maintenance	NAVMC 3500.XX	TBD	EST 3rd Qtr, Fy10
MATC Operations	NAVMC DIR 3500.98	03 Apr 06	EST 3rd Qtr, Fy10
MATC 5900 Maintenance	NAVMC 3500.XX	TBD	3rd Qtr, Fy10*
DASC Operations	NAVMC DIR 3500.97	9 May 06	EST 3rd Qtr, Fy10
DASC 5900 Maintenance	NAVMC 3500.XX	TBD	EST 3rd Qtr, Fy10
LAAD	NAVMC 3500.57	12 Nov 08	1st QTR, FY 11
UAS (7314/15) Operations	NAVMC 3500.34	09 Oct 07	EST 3rd Qtr, Fy10
UAS (6314) Maintenance	NAVMC 3500.XX	TBD	FY 2011*
METOC	NAVMC 3500.38	11 Dec 07	1st QTR, FY 11
METEM	NAVMC 3500.62	4 May 09	May 12
AES	NAVMC 3500.45	31 Mar 08	4th QTR, FY10
AOS	MCO P3500.71	15 Sep 04	EST 3rd Qtr, Fy10

*Initial Development Conference
Next Conference

Mission Planning Systems - JMPS

Description

- Technological advances in naval aviation aircraft demand a need for expeditious, accurate, and deployable/embarkable mission planning capability. The system is required to provide automated functionality and to be congruent with aircraft OFP releases. Modern aircraft are increasingly complex environments when planning and loading cryptological, communications, route information for the aircraft, weapons, and sensors. Pre-flight planning is a mission critical enabler to several mission sets and could be considered no-go criteria if it is inoperable.
- JMPS is a co-development project with the USAF. NavMPS is the DoN ACAT IVT POR for mission planning and is a sub-set of JMPS and will serve to replace Portable Flight Planning Software (PFPS) as the single source mission planning system for USMC Aviation platforms. The mission planning system for the F-35B is the Off-Board Mission Planning System (OMS). The JSF ORD and JSF Model Specification (JMS) documents require a mission planning that utilizes JMPS as the core planning tool, to interface and integrates with off-board planning systems.
- JMPS is composed of: Framework (FW), Common Components (CC), and aircraft Unique Planning Components (UPC). The Mission Planning Environment (MPE) is comprised up of CC and UPC for each specific T/M/S platform.
  - As aircraft OFP's are released, each platform fields a new MPE which will interface with the JMPS architecture to account for changes or new capabilities.
  - Sample capabilities include route planning, threat analysis, tactical graphics, Weaponeering and Stores Planning (WASP) or Weaponeering and Release Planner (WARP), and sensor planning.

Functions:

- **Mission Planning:**
  - ATO/ACO parsing
  - Takeoff/Landing data
  - Route planning
  - Route deconfliction/Safety of Flight
  - Fuel Planning
  - Weaponeering
  - Threat planning, analysis, masking
  - Air Refueling/Air Drop planning
- **Mission Briefing:**
  - Kneeboard cards
- **Mission Rehearsal:**
  - Tactical Operational Scene (TOPSCENE)
  - Skyview
- **Data Loading to Aircraft/Weapons:**
  - All A/G munitions are planned & weaponeered using NavMPS
    - TACAIR: JSOW, JDAM, GBU, MK80 series, HARM, etc.
    - Assault Support: Weapons Engagement Zones
  - Avionics Data
  - Comm/Nav Loading
  - Blue Force Tracker (BFT)/Tactical Situation Awareness (TSA)
  - Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)
  - Tactical Aircraft Moving Map Capability (TAMMAC)
  - GPS Crypto
  - Electronic Chart Update Manual (ECHUM)
  - Tactical Graphics/Local Points
- **Mission Debrief:**
  - Mission Data Debrief Software (MDDS)
  - Personal Computer Debriefing System (PCDS)

Section 11 --- Aviation Manpower

Aviation Manpower Plans

Aviation manpower plans are focused on finding the balance between the competing challenges of sustaining current operations and simultaneously transitioning and growing Marine aviation as we prepare for the future. As always, our Marines remain the key to success as we confront these challenges. Our Marines continue to deploy at a tempo unparalleled by that of any previous all-volunteer force. The following information highlights the initiatives, programs, and results of 2010, and our future manpower vision as we continue transforming and growing our force.

202K Endstrength and the Aviation Plan (AvPlan)

The Marine Corps has increased overall endstrength to 202,000 (202K) active-duty Marines. Concurrently, Marine aviation continues to refine the Marine Aviation Transition Strategy (MATS), already in execution. We are returning necessary manpower resources to a stressed operating force, increasing the number of operational units available, and identifying transitional structure to continue the FY11 portion of the transition strategy. As a result of the 202K initiative, Marine aviation is growing by almost 5,000 Marines as we transform enlisted and officer manpower across all of our aviation communities. This manpower increase resulted in the active component ACE's growing three additional HMLAs, three additional HMHs, and an additional VMU. VMFAT-501 activated in FY10, and VMFA-332 and VMFA-212 will return from cadre status to transition to JSF squadrons. The MACG will also see significant relief in deployment tempo as a result of an increase in the number of deployable detachments.

Monitoring the Manpower Inventories

Maintaining healthy manpower inventories provides the flexibility Marine aviation requires to meet its dynamic transition and growth plans. Within the Human Resources Development Process (HRDP) the Grade Adjusted Recapitulation (GAR) represents the requirement for each MOS. Tables 3-1 thru 3-3 depict current aviation manpower inventories and how they relate to GAR. Aviation also tracks MOS health through analysis of the First Term Alignment Plan (FTAP) (Table 3-4) and the Subsequent Term Alignment Plan (STAP) (Table 3-5).

Officer Health (Jun 2010)

Unrestricted Officers JUN 2010	On-Board	GAR	% of GAR	A + Nec B Billets[1]	% of A+ Nec B Billets[1]
7509 (AV-8)	369	397	93%	334	110%
7523 (F/A-18)	565	582	97%	494	114%
7543 (EA-6B)	82	88	93%	74	111%
7556/57 (KC-130)	372	396	94%	335	111%
F/W PILOT TOTALS	**1,388**	**1,463**	**95%**	**1,237**	**112%**
7532 (MV-22)	244	437	56%	362	67%
7562 (CH-46)	608	428	142%	347	175%
7563 (UH-1)	307	379	81%	317	97%
7564/66 (CH-53)	578	661	87%	558	104%
7565 (AH-1)	542	646	84%	540	100%
R/T/W PILOT TOTALS	**2,279**	**2,551**	**89%**	**2,124**	**107%**
7525 (WSO)	187	158	118%	144	130%
7588 (ECMO)	190	186	102%	150	127%
NFO TOTALS	**377**	**344**	**110%**	**294**	**128%**
6002 (Aircraft Maintenance)	250	266	94%	209	120%
6602 (Aviation Supply)	214	223	96%	177	121%
7202 (Air CMD & Control)	149	216	69%	166	90%
7204 (LAAD)	66	43	153%	33	200%
7208 (Air Support)	196	198	99%	168	117%
7210 (Air Defense Control)	113	103	110%	82	138%
7220 (Air Traffic Control)	106	80	133%	67	158%
AVN-GROUND TOTALS	**1,094**	**1,129**	**97%**	**902**	**121%**

TABLE 3-1

Note 1: MMOA utilizes necessary A and B billets as the Health Index vice GAR; this is due to the long Time To Train ($T^{3.}$) combined with the fact that officers are not promoted by MOS.

Restricted Officers JUN 2010	CWO		LDO		Total
	On-Board	GAR	On-Board	GAR	Strength
5902 (Electronic Maint)	0	0	33	33	100%
5910 (Radar Officer)	12	13	0	0	92%
5950 (ATC Maint)	17	19	0	0	89%
5970 (Data systems)	16	18	0	0	89%
6004 (A/C Maint. Engineer)	91	98	45	44	96%
6302 (Avionics Officer)	94	90	45	44	104%
6502 (Ordnance Officer)	56	54	39	39	102%
6604 (Avn Supply Ops Off)	44	44	0	0	100%
6802 (METOC Officer)	26	25	10	10	103%
7002 (Exp Airfield & ES Off)	37	38	0	0	97%
7380 (Tacital Sys Officer)	13	13	0	0	100%
RESTRICTED TOTALS	**406**	**412**	**172**	**170**	**99%**

TABLE 3-2

Enlisted Manning

Aviation enlisted health (Table 3-3) depicts individual occupational field health as a percentage of the FY11 GAR. Compared to last year's 101% aggregate, this year's inventory of Marines has declined slightly, but remains healthy at 99%. Our aviation inventories are keeping pace with the 202K end strength growth.

The aggressive growth of the 202K force (5000/year) raised initial concerns in FY09 with regard to assignable manpower inventory lagging behind demand. By continuing the crawl-walk-run phase-in plan established in FY10 for activation of new units we continue to mitigate these concerns.

Additional indicators used in assessing the health of the enlisted force are the First Term Alignment Plan (FTAP) and Subsequent Term Alignment Plan (STAP) re-enlistment programs. The FTAP is constrained by the FY in which a Marine executes his first reenlistment (Table 3-4). However, STAP is a rolling twelve-month requirement for career Marines (Table 3-5).

Due to the ambitious nature of the 202K growth, M&RA implemented an aggressive retention bonus plan in FY08, resulting in retention rates far surpassing those of previous years. Table 3-4 depicts aviation's current FY10 execution at 102%. Aviation's FY10 quota and execution remained consistent with that in FY09.

Enlisted Occupational Health as of September 2010

OCC FIELDS SEP 2010	GAR	On Board	% of GAR
59XX (Electronics Maintenance)	1589	1765	111%
60XX (Aircraft Maintenance)	5303	5326	100%
61XX (RW Maintenance)	7048	6804	97%
62XX (FW Maintenance)	4016	4321	108%
63XX (Avionics OMA)	4383	4259	97%
64XX (Avionics IMA)	3011	2942	98%
65XX (Aviation Ordnance)	2858	2851	100%
66XX (Aviation Supply)	2175	2360	109%
68XX (Aviation Weather)	464	344	74%
70XX (Airfield Services)	2382	2390	100%
72XX (Air Control/Support)	2253	1952	87%
73XX (Enlisted Flight Crew)	435	388	89%
TOTALS	**35917**	**35702**	**99%**

TABLE 3-3

First Term Alignment Plan (FTAP) as of September 2010

OCC FIELD	Lat Moves	FTAP Exec	Remain BS	10 FTAP Quota	FY 10% Exec	FY 09 Quota	FY 08 Quota
59XX	21	66	0	63	105%	61	61
60XX	17	212	0	211	100%	238	206
61XX	117	343	0	340	101%	300	313
62XX	14	145	0	143	101%	149	145
63XX	42	224	0	222	101%	209	231
64XX	12	125	0	120	104%	119	106
65XX	4	128	0	128	100%	126	204
66XX	2	95	0	88	108%	87	120
68XX	16	29	0	29	100%	24	24
70XX	12	95	0	91	104%	111	150
72XX	29	97	0	96	101%	78	147
73XX	15	23	0	23	100%	18	14
TOTALS	**301**	**1582**	**0**	**1554**	**102%**	**1520**	**1721**

TABLE 3-4 Note 1: Boat spaces (BS) are the number of Marines that a specific MOS is programmed to reenlist in a specific FY.

Enlisted Retention

The Selective Reenlistment Bonus (SRB) program has evolved to meet the demands associated with Marine aviation's portion of the 202k growth plan. This growth and associated program requirements present challenges in retaining the best, hardest to retain Marines in critical high-demand / low-density MOSs. Therefore, reenlistment incentives were increased greatly, traditional "boat space" restrictions were lifted, and lateral move opportunities were increased; all these actions ensure the Marine Corps supports end strength increase across all affected MOS's and ranks. Currently the Marine Corps inventory consists of over 179,451 enlisted Marines and almost 21,592 officers (approximately 201,043 total). This is a slight decrease, temporary in nature, due to transitioning platforms.

Enlisted Time to Train (T3)

We work continuously within the naval aviation enterprise (NAE) to develop and implement improved solutions to expedite the training and production of aviation maintenance personnel. HQMC works closely with TECOM on T3 management for our enlisted Marines.

Aviation "Top 6" and Enlisted Grade Shape Review (EGSR)

The Marine Aviation Transition Plan applied resources to improve aviation safety initiatives discussed in CMC Policy Directive 1-05. Part of the directive's intent was to provide more experience and supervision in the enlisted ranks of the QA, Maintenance Control and Safety Departments. Presently, Marine aviation's "Top Six" inventory (E4-E9) is 63.8% of the total enlisted population. This number reflects favorably against a Marine Corps-wide Top Six percentage of 55.4%; however, aviation units by their nature require NCOs to have more certifications and qualifications, and the ACE Top Six number is generally ten percent higher than that of the GCE and LCE.

Subsequent Term Alignment Plan (STAP)

OCC FIELD	Zone A/B Exec [1]	Zone C Exec [2]	Zone D Exec [3]	STAP Exec	STAP Remain	STAP Quota	STAP % Exec
59XX	27	25	10	63	21	80	79%
60XX	80	70	79	244	46	273	89%
61XX	142	114	66	332	32	304	109%
62XX	67	73	40	184	56	217	85%
63XX	93	67	29	192	21	186	103%
64XX	60	41	29	135	17	132	102%
65XX	68	43	18	137	0	99	138%
66XX	51	51	18	126	0	86	147%
68XX	15	8	4	27	0	19	142%
70XX	76	40	26	144	8	137	105%
72XX	48	24	19	92	24	105	88%
73XX	7	7	6	20	2	16	125%
TOTALS	**734**	**563**	**344**	**1696**	**227**	**1654**	**103%**

TABLE 3-5

Note 1: Zone A = fewer than 6 years' active duty.
Zone B = 6-10 years' active duty.
Note 2: Zone C = 10-14 years' active duty.
Note 3: Zone D = 14-19 years' active duty.

Ongoing Manpower Issues

AvPlan Implementation Strategy and the 202K Endstrength Increase

The Commandant of the Marine Corps (CMC) increased the overall endstrength of the Marine Corps to 202K. Marine Aviation meanwhile continues to execute its Marine Aviation Transition Strategy (MATS); this combination of initiatives infused critical resources to a stressed operating force. However, this aggressive pace of growth presents significant manpower management challenges. Most aviation-related occupational fields and aircrew training have long T3 requirements. It will require several years to grow and mature the inventories properly with regard to rank mix and specific MOSs.

EA-6B Training

USMC EA-6B aircrew training will continue at VAQ-129 as it has for almost the last thirty-five years. In the near future, the USN's transition to an all EA-18G force by FY15 will require the USMC to periodically reevaluate initial EA-6B training to determine the best course of action for the Corps and Naval Aviation Enterprise as a whole.

F/A-18A/C/D FRS Training

F/A-18 C/D training is currently conducted by VMFAT-101, VFA-125 and VFA-106. Beginning in FY13, the USMC will cease F/A-18 C/D FRS production at VFA-125. Consequently, MATSG-23 will sundown concurrently with the divestment of USMC participation at VFA-125. Manning and staffing will be adjusted accordingly at VMFAT-101 and MATSG-33 to support the resulting increase in USMC production requirement at those FRSs.

Aviation Career Pay (ACP) Goals/Current Status

The FY10 ACP program was disseminated by MARADMIN 637/09, and defines the specifications relating to ACP. ACP is a special pay that varies annually depending on the health of aviation officer inventories. The intent is to provide a proactive, long-term aviation career incentive for Marine aviation officers. The health of each community is analyzed using a combination of current and forecast inventories and current and forecast requirements. Budget forecasts show ACP funding is set to meet the anticipated demand.

Naval Flight Officer Sundown Plan

Based on the current aviation transition strategy, there will no longer be a requirement for USMC Naval Flight Officers (NFOs) in TACAIR cockpits after FY19. The F/A-18D WSO MOS (7525) and the EA-6B ECMO MOS (7588) will be programmed to end as a primary MOS at a date TBD. Marine aviation is actively engaged with Manpower and Reserve Affairs to ensure officer end strength and accessions provide flexibility and professional opportunities for remaining NFOs, while capitalizing on NFO MOS expertise. This expertise will be harnessed by aligning the electronic warfare and missions systems skills in the NFO community with emerging requirements in the UAS family of systems (FoS), manned ISR initiatives and the F-35B program. Additionally, the sundown plan will include an increase in NFO-to-pilot transition opportunities.

TACAIR Integration

Marine aviation has worked closely with the Navy in order to match each service's TACAIR resources to their mission requirements. In the execution of this plan, Marine F/A-18 squadrons embarked aboard aircraft carriers require additional manpower to meet the demands of operating at sea. Accordingly, an updated table of organization (T/O) was developed for F/A-18 A+/C squadrons programmed for tactical air integration (TAI), with an increase of twenty-six Marines (25 O-level and one I-level). The Navy also programmed for three 57-man Intermediate Maintenance Activity (IMA) detachments to increase expeditionary capabilities for their UDP units.

Manpower Changes with a Transitioning Force

HQMC Aviation (ASM), Total Force Structure (TFS) and Manpower and Reserve Affairs (M&RA) continue to manage finite resources to meet the expanding requirements associated with our transition plans and the operational requirements of our force.

KC-130J Conversion

Active component VMGR squadrons have completed KC-130J transition and are now fully focused on supporting operational commitments. The tables of organization for all three squadrons now meet the requirements of a twelve-plane PMAI for the KC-130J and are programmed to meet a fifteen-plane PMAI requirement consistent with the KC-130J delivery schedule. KC-130J squadrons are structured to support a nine-plane core squadron and up to two three-plane detachments. While this structure is aligned with the KC-130J T&R, it is not meant to restrict the flexibility as to how KC-130J supports the MAGTF. The reserve component will begin its transition to the KC-130J in FY14 and will maintain a twelve-plane PMAI with a six-plane core squadron and two three-plane detachments.

The KC-130J brought changes to squadron manpower requirements by reducing the number of Marines required to maintain and operate the new aircraft. Additionally, six years of KC-130J operational experience since IOC in 2005 positioned the community to re-evaluate its manpower requirements. As a result, the KC-130J loadmaster and crew chief have been merged into a single "Crewmaster" MOS.

Additionally, the armed KC-130J "Harvest Hawk" mission will require a new Fire Control Operator (FCO) crew position to operate the fire control station. Initial deployment requirements for this crew position will be filled by WSOs and pilots with sensor management and weapons employment experience. Several courses of action are currently in development to develop these skill sets within the KC-130J community and provide for a long term solution for the manning of the FCO crew position.

MV-22 Transition

Second Marine Aircraft Wing's HMM to VMM transition is complete. Marine Aircraft Groups-26 and -29 have been realigned so that MAG-26 is all tilt-rotor and MAG-29 has all rotary wing squadrons. Focus is now on transferring and/or leveraging manpower with MV-22 experience to the west coast as we continue to transition HMM squadrons to VMMs.

The Osprey completed three combat deployments to Operation IRAQI FREEDOM and two successful deployments with Marine Expeditionary Units. In FY10 VMM squadrons from MAG-26 completed two deployments in support of Operation ENDURING FREEDOM.

During late 2006, the MV-22 pilot selection process changed from a board-only process to a direct assignment process managed by MMOA-2. MMOA now manages direct assignment of CH-46E pilots for MV-22 transition. The annual DCA transition/conversion board continues to select fixed-wing pilots, and rotary-wing pilots from outside the CH-46E community, for MV-22 transition. The revised policy supports transition of the medium-lift assault support community and will take into account the critical balance of building the VMM population aggressively while also continuing to meet ongoing warfighting requirements.

UH-1Y/AH-1Z Conversion

The UH-1Y has completed two successful deployments to Operation ENDURING FREEDOM with MAG-39 squadrons. A significant number of Y/Z trained Marines are now in operational units within 3d MAW. The addition of these Marines to the fleet will bolster the growing UH-1Y and AH-1Z experience base.

Structure has been consolidated at VX-9, NAWC China Lake, and will provide the infrastructure for future H-1 Operational Test and Evaluation (OT&E) requirements. Increased manning has been provided to HMLAT-303 to support transition training. Additionally, HMLAT-303 is being augmented with contract maintenance support (CMS). The increase in FRS manpower will support both conversion training of fleet squadrons and increased throughput associated with the activation of three additional HMLAs. Furthermore, plans are being refined to increase use of reserve personnel and units in support of the FRS and the overall H-1 transition. The first HMLAT-303 UH-1Y training began in FY08, and the first Cobra detachment began AH-1Z pilot training in FY10.

HMLA-367 and HMLA-369 completed their transition to Yankees and HMLA-469 reached FOC in June 2010. Marine aviation is developing a detailed manning plan for the stand-up of HMLA-567 in FY12.

VXX Conversion

HMX-1 will continue the executive lift mission with legacy VH aircraft until another platform is introduced. The analysis of alternatives for the next generation Presidential helicopter is underway.

CH-53K Transition

HX-21 will begin receiving structure to support CH-53K developmental test in FY11. Marine aviation is executing a phased manpower plan to augment VMX-22 as they continue the CH-53 OT&E mission. Initial structure will support OT&E planning with follow-on structure to support a CH-53K operations and maintenance capability.

F-35B Transition

Manpower requirements have been programmed to support all squadron transitions from legacy TACAIR TMSs (F/A-18A/C/D, EA-6B and AV-8B) to F-35B and the activation of FRS squadrons through FY15. This programming includes the standup of the Joint Integrated Training Center (JITC), activations of VMFA-332 and VMFA-212 from cadre status, the transition of an additional three operational squadrons from legacy, and the activation of two FRSs (VMFAT-501 and VMFAT-502). The JITC, located at Eglin AFB, is the site for the first F-35B FRS and all F-35B maintenance training. It is composed of the 33rd Fighter Wing staff, the 33rd Maintenance Group, the F-35B FRS (VMFAT-501), an Academic Training Center, and a Maintenance Training Squadron (359 TRS). Two follow on FRSs are planned to support additional pilot training requirements with a location TBD pending environmental studies. Planned squadron transitions to F-35B begin in FY12. Aviation selected the first cadre of JSF instructor pilots in CY09 and will convene follow-on F-35B transition selection boards to meet FRS and operational squadron staffing requirements.

Targeted communities for transition to F-35B are F/A-18, AV-8 and EA-6B. Transition manpower plans are designed to support manpower requirements for both the introduction of F-35B squadrons and while maintaining legacy TMS deployment capability. VMX-22 will assume mission of F-35B OT&E.

UAS Transition

The Marine Corps is instituting significant changes with respect to manpower and equipment. Programmed requirements have supported the activation of VMU-3 and VMU-4, transition to the RQ-7B Shadow, addition of STUAS in FY12, and expansion of aviation concepts at the small unit level with the RQ-11 Raven. Additionally, a UAS Officer PMOS has been added to the MOS Manual selections for lateral moves to begin on the CY11 Transition/Conversion Board.

The Marine Corps' transition to the RQ-7B Shadow facilitated expanded capabilities within the existing manpower structure. The Performance-Based Logistics maintenance contract allowed for restructuring that shifted manpower from maintenance to operations and resulted in increased operational capabilities. This further enabled the VMU structure to be changed from a single deploying squadron into one that can provide three deployable detachments.

The UAS community continues to support the MAGTF with an ISR services contract; however, it remains augmented by Marine manpower. The Marine Corps will supplant this contract with the STUAS IOC in FY12 and a 30% increase in VMU structure in FY12. The additional manpower will support STUAS fielding and enable VMU squadrons to task-organize and deploy multiple and scalable STUAS and MCTUAS detachments in support of the full range of MAGTF operations.

By FY16, the MAGTF will employ UAS with an expeditionary capability exceeding that currently available from existing systems. UAS capability will continue to expand with the planned acquisition of a Group 4- sized UAS. This system will exceed the current RQ-7B capability and drive additional manpower skill requirements for weaponization and electronic warfare for continued support to future MAGTF requirements. The planned IOC of a Cargo UAS in FY16 will also change requirements for UAS manpower, training, and tactical leadership. As the Cargo UAS mission becomes more defined, it will bring additional changes in organization and structure to Marine aviation.

Personnel Exchange Program (PEP)

The Marine Corps shares 24 aviation exchange billets with our sister services, allies and partners. New for 2010 are exchanges for the UH-1Y and USAF HH-60G "Pavehawk," and for the KC-130J and MC-130P "Combat Talon." In addition to these billets, the Marine Corps continues to expand exchange programs to share tactical experience and operational employment concepts for a new generation of aircraft, unmanned aircraft systems, and C2 technology. Applicants for PEP billets are thoroughly screened to ensure they are the most competitive and qualified individuals to represent their service and country. More information can be found on the HQMC Aviation website. Table 3-6 depicts current USMC aviation exchanges.

While most exchange tours last two to three years, we are also exploring short term "subject matter expert" exchanges with non-traditional partner nations. These short term exchanges will be coordinated with MAWTS-1 and will encompass a wide variety of aviation communities.

Current Aviation Exchanges

Canada	F/A-18 (MAG-31)
	KC-130J (VMGR-252)
Italy	AV-8B (MAG-14)
Spain	AV-8B (MAG-13)
United Kingdom	2 x AV-8B (MAG-13)
	2 x AV-8B (MAG-14)
	F/A-18 (VMFAT-101)
	MV-22 (MAG-26)
	AH-1W (MAG-39)
	Air Defense Controller (MAWTS-1)
United States Air Force	F-5 (VMFT-401)
	F/A-18 (MAG-31)
	AV-8B (MAG-13) (2)
	UH-1Y (MAG-39)
	KC-130J (VMGR-252)
	JTAC (EWTGPAC)
	Air Traffic Control (MACS-1)
	Tactical Air Defense Controller (MACS-1)
United States Army	UH-1 (MAWTS-1)
United States Navy	F/A-18 (MAWTS-1) (2)
	EA-6B ECMO (MAWTS-1) (2)
Service	**Billet**

Country/Service	USMC Billets with Foreign Nation or Inter-sevice
Australia	ARH Tiger (RAA)
	F/A-18 (RAAF)
	F/A-18 Maintence Officer (RAAF)
	Air Traffic Control/Support (RAAF)
Canada	F/A-18 (CAF)
	CC-130 (CAF)
Italy	AV-8B (IN)
Spain	AV-8B (SN)
United Kingdom	GR7/9 Harrier (RN)
	GR7/9 Harrier (RAF)
	Typhoon F2 (RAF)
	Mk4 Sea King (RN)
	Mk7 Lynx (RM)
	Air Defense Controller (RAF)
United States Air Force	F-16 (Filled by F/A-18 pilot) (Luke AFB)
	F-16 (Filled by AV-8B pilot) (Shaw AFB)
	F-22 (Filled by F/A-18 pilot) (Nellis AFB)
	JTAC (AGOS/JFCC) (Nellis AFB)
	MC-130P (Eglin AFB)
	HH-60G (Davis Monthan AFB)
	Air Traffic Control (Eglin AFB)
	Tactical Air Defense Controller (Hill AFB)
	CV-22 (1)
United States Army	AH-6 (TF-160) (Fort Cambell)
United States Navy	F/A-18 (NSAWC) (NAS Fallon)
	EA-6B ECMO (NSAWC) (NAS Fallon) (2)

TABLE 3-6

NOTES:
(1) Pending (2) Not currently filled

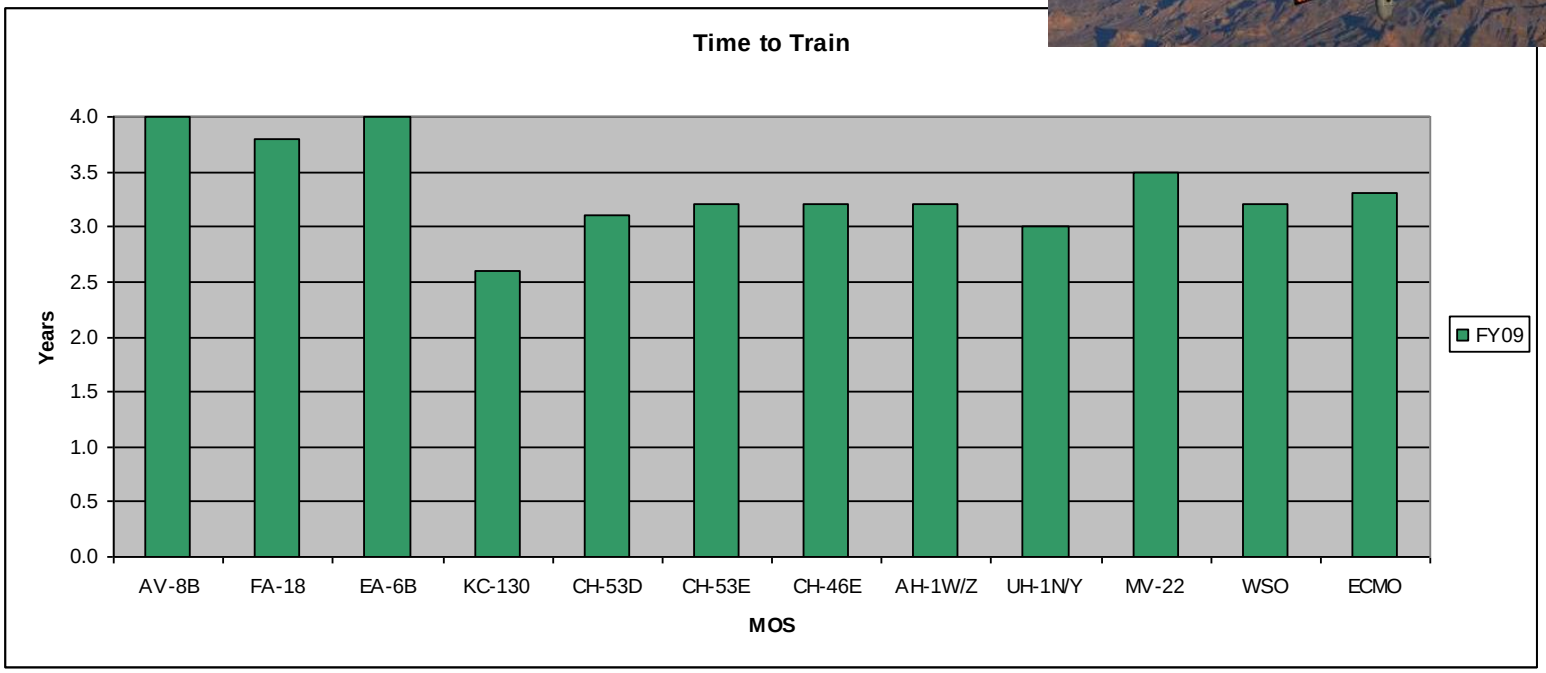
Pilot Training Requirements through 2020

Aviation Training System (ATS) Initiatives

We continue to refine our comprehensive and fully integrated training continuum for all Marine aviation platforms. Key program initiatives include standardization and evaluation for flight leadership and for T&R events across all tactical and training evolutions, to include all aircrew, maintenance and C2 personnel. In the long term, we expect higher-quality training at reduced costs through a systems approach to training with an increased reliance on high-fidelity simulators. Within each of the three active duty Air Wings, we are placing aircrew, maintenance, and C2 training detachments at all major subordinate command locations. This will facilitate the integration of tactical training across all platforms and incorporate increased simulation. The initial structure dedicated to fill core staff billets was complete at the end of FY10. ATS continues its migration to the RC.

Officer Time to Train (T3)

Increasing external demands on fleet replacement squadrons, and aging aircraft, are increasing T3 for replacement pilots and aircrew. Table 3-8 depicts the last FY's full time to train from The Basic School (TBS) to the Fleet.



Pilot and NFO Training Requirements

• The CAT I initial accession and NFO numbers are derived from MPP-30 officer accession models.

• The CAT II,III, and IV numbers are derived from MMOA historical data and planned assignments.

• Tables reflect pilot training requirements published in the OPNAV Training Requirements Letter (TRL) and are subject to change as updated during Production Alignment Conferences (PACs) and naval aviation enterprise direction.

• USMC inputs are submitted annually and are based on a ten-year forecast.

Cat I Totals

MARINE AVIATION PILOT TRAINING REQUIREMENT					
FISCAL YEAR	STRIKE	MARITIME	ROTARY	TILTROTOR	TOTAL
10	82	26	195	36	339
11	85	28	190	42	345
12	85	30	189	46	350
13	93	35	169	48	345
14	88	35	168	64	355
15	87	35	168	64	354
16	80	35	168	80	363
17	74	35	168	80	357
18	70	35	168	80	353
19	68	35	168	80	351
20	58	35	168	80	341

MARINE AVIATION NFO TRAINING REQUIREMENT					
FISCAL YEAR	STRIKE/FIGHTER	STRIKE (ECMO)	ATDS	NAV	TOTAL
10	13	15	0	0	28
11	14	14	0	0	28
12	14	14	0	0	28
13	13	14	0	0	27
14	10	12	0	0	22
15	8	12	0	0	20
16	5	10	0	0	15
17	0	6	0	0	6
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0

TABLE 3-9 (CAT I Totals)

TacAir Aircrew Training Requirements

MARINE AVIATION TACAIR PILOT TRAINING REQUIREMENT (PTR)											
TRAINING UNIT	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
VMFAT-101 FRS TRAINING REQUIREMENT											
CAT I PILOT	17	25	24	33	37	39	39	32	20	23	13
CAT II PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT III PILOT	11	11	10	10	10	10	10	18	13	13	13
CAT IV PILOT	7	7	6	6	9	9	7	14	10	8	8
CAT V CQ	5	5	5	5	5	5	5	6	3	3	3
CAT I WSO	13	14	14	13	10	8	5	0	0	0	0
CAT II WSO	0	0	0	0	0	0	0	0	0	0	0
CAT III WSO	7	7	7	7	7	7	6	6	6	6	6
CAT IV WSO	5	5	5	5	5	5	4	4	4	4	4
VFA-106 FRS TRAINING REQUIREMENT											
CAT I PILOT	16	18	18	16	11	9	6	0	0	0	0
CAT II PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT III PILOT	13	13	12	12	10	10	8	0	0	0	0
CAT IV PILOT	11	11	11	11	7	7	7	0	0	0	0
CAT V CQ	7	7	7	6	5	5	3	0	0	0	0
VFA-125 FRS TRAINING REQUIREMENT(POST FY11 PLAN UNDER DEVELOPMENT/ LEGACY TRAINING ENDS FY13)											
CAT I PILOT	13	5	6	0	0	0	0	0	0	0	0
CAT II PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT III PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT IV PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT V CQ	0	0	0	0	0	0	0	0	0	0	0
F/A-18A+/C/D TOTAL REQUIREMENTS											
CAT I PILOT	**46**	**48**	**48**	**49**	**48**	**48**	**45**	**32**	**20**	**23**	**13**
CAT II PILOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CAT III PILOT	**24**	**24**	**22**	**22**	**20**	**20**	**18**	**18**	**13**	**13**	**13**
CAT IV PILOT	**18**	**18**	**17**	**17**	**16**	**16**	**14**	**14**	**10**	**8**	**8**
CAT V CQ	**12**	**12**	**12**	**11**	**10**	**10**	**8**	**6**	**3**	**3**	**3**
VMFAT-501 F-35B FRS TRAINING REQUIREMENT											
CAT I	0	0	0	7	9	15	17	31	45	45	45
CAT II U.S.	0	15	18	18	20	30	37	46	46	46	46
CAT II FMS	0	0	4	0	4	6	14	8	8	8	8
CAT III	0	0	0	0	0	0	0	0	0	0	0
CAT IV	0	0	0	0	0	0	0	0	0	0	0
CAT V (.5-1.0 UPGRD)	0	5	5	0	0	0	0	0	0	0	0
CAT V (1.0-2.0 UPGRD))	0	0	14	1	0	0	0	0	0	0	0
VAQ-129											
CAT I PILOT	6	7	7	7	6	4	3	1	0	0	0
CAT II PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT III PILOT	3	3	3	3	3	3	3	3	3	3	0
CAT IV PILOT	3	3	3	3	3	3	3	3	3	3	0
CAT I ECMO	15	15	15	15	12	12	10	6	0	0	0
CAT II ECMO	0	0	0	0	0	0	0	0	0	0	0
CAT III ECMO	5	5	5	5	5	5	5	5	5	5	0
CAT IV ECMO	5	5	5	5	5	5	5	5	5	5	0
VMAT-203 FRS TRAINING REQUIREMENT											
CAT I PILOT	30	30	30	30	25	20	15	10	5	0	0
CAT II PILOT	0	0	0	0	0	0	0	0	0	0	0
CAT III PILOT	13	13	13	12	11	10	9	8	7	7	7
CAT IV PILOT	12	12	12	11	10	9	8	7	6	6	6
FMS	3	3	3	3	1	1	0	0	0	0	0

TABLE 3-10

This table reflects pilot training requirements published in the OPNAV Training Requirements Letter (TRL). USMC inputs are submitted annually and are based on a ten-year forecast.

Assault Support Pilot Training Requirements

MARINE AVIATION ASSAULT SUPPORT PILOT TRAINING REQUIREMENT (PTR)											
TRAINING UNIT	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
VMGR KC-130J TRAINING REQUIRMENT											
CAT I	26	28	30	35	35	35	35	35	35	35	35
CAT I TRANSITION	1	1	2	2	2	2	2	2	2	2	2
CAT II	10	8	4	2	2	0	0	0	0	0	0
CAT III	8	8	8	8	8	8	8	8	8	8	8
CAT IV	6	6	6	6	6	6	6	6	6	6	6
VMMT-204 (MV-22) FRS TRAINING REQUIREMENT											
CAT I	36	42	46	48	64	64	80	80	80	80	80
CAT I USAF (CAT I Syllabus)	21	24	24	24	24	28	28	28	28	28	28
CAT I (Transition)	37	34	28	28	28	28	10	10	10	10	10
CAT II (Series Conversion)	0	0	0	0	0	0	0	0	0	0	0
CAT III	2	2	4	4	4	10	10	10	10	10	10
CAT IV	0	0	0	0	0	0	0	0	5	6	6
CAT V (FMS)	0	0	0	0	0	0	0	0	0	0	0
HMMT-164 (CH-46E) FRS TRAINING REQUIREMENT											
CAT I	32	24	18	10	0	0	0	0	0	0	0
CAT II	0	0	0	0	0	0	0	0	0	0	0
CAT III	23	25	19	20	0	0	0	0	0	0	0
CAT IV	0	0	0	0	0	0	0	0	0	0	0
FMS	0	0	0	0	0	0	0	0	0	0	0
HMHT-302 (CH-53D & CH-53E) FRS TRAINING REQUIREMENT											
CAT I CH-53D/E	60	60	60	60	65	65	65	65	65	59	42
CAT I CH-53K	0	0	0	0	0	0	0	0	6	12	18
CAT I (Transition)	0	0	0	0	0	0	0	0	0	0	0
CAT II (CH-53D)	20	10	5	0	0	0	0	0	0	0	0
CAT II (CH-53E)	4	6	6	6	6	6	6	6	6	6	6
CAT II (CH-53K)	0	0	0	0	0	0	0	0	0	26	26
CAT III	30	26	26	26	26	26	26	26	26	26	26
CAT IV	0	0	0	0	0	0	0	0	0	0	0

TABLE 3-11

This table reflects pilot training requirements published in the OPNAV Training Requirements Letter (TRL).
USMC inputs are submitted annually and are based on a ten-year forecast.

Light Attack Pilot Training Requirements

MARINE AVIATION LIGHT ATTACK PILOT TRAINING REQUIREMENT (PTR)											
TRAINING UNIT	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
HMLAT-303 (UH-1/AH-1) FRS TRAINING REQUIREMENT											
UH-1N:											
CAT I	24	22	14	0	0	0	0	0	0	0	0
CAT II	2	2	0	0	0	0	0	0	0	0	0
CAT III	8	5	3	3	3	0	0	0	0	0	0
CAT IV	0	0	0	0	0	0	0	0	0	0	0
UH-1Y:											
CAT I	15	17	31	33	35	35	35	35	35	35	35
CAT II (N to Y)	25	30	15	15	19	19	19	19	19	19	19
CAT II	3	3	3	3	3	3	3	3	3	3	3
CAT III	8	10	18	18	18	18	18	18	18	18	18
CAT IV	0	0	0	0	0	0	0	0	0	0	0
AH-1W:											
CAT I	59	59	56	56	56	53	50	47	35	20	20
CAT II	2	2	2	2	2	0	0	0	0	0	0
CAT III	20	20	20	20	20	20	20	20	20	20	20
CAT IV	0	0	0	0	0	0	0	0	0	0	0
FMS	0	0	0	0	0	0	0	0	0	0	0
AH-1Z:											
CAT I	5	8	10	10	12	15	18	21	33	48	48
CAT II (W to Z)	12	16	12	13	16	19	26	33	40	47	47
CAT II	0	0	0	0	0	0	2	2	2	2	2
CAT III	0	0	4	4	4	6	6	6	6	6	6
CAT IV	0	0	0	0	0	0	0	0	0	0	0

TABLE 3-12

This table reflects pilot training requirements published in the OPNAV Training Requirements Letter (TRL). USMC inputs are submitted annually and are based on a ten-year forecast.

Section 12 --- Marine Aviation Science and Technology Plan

Aviation Science and Technology

Marine aviation is an integrated and essential component of the Marine Air-Ground Task Force (MAGTF), supporting and sustaining naval and joint forces throughout the range of military operations. Aviation resources must be available to the MAGTF/joint force commander regardless of the operational scenario, austerity of engagement, or level of lethality. Due to the complexity and expense normally associated with aviation combat and support systems, component extensibility / upgradeability is key to ensure future utility regardless of the threat or operational environment.

The Vision

As we execute the Commandant's "Vision and Strategy 2025" in complex, hybrid environments of the future, we must be well-postured to remain the nation's force in readiness, regardless of the operational context. To this end, the aviation vision is for a network-enabled and digitally-interoperable expeditionary aviation combat element postured to execute responsive, persistent, lethal and adaptive full-spectrum operations as directed by the MAGTF or joint force commander.

Aviation S&T Strategic Guidance

This chapter serves to articulate Marine Corps-unique S&T needs to those agencies devoted to aviation S&T priorities. Aviation focal points include both S&T program opportunities and legacy S&T investment category priorities.

Key Program Challenges Major aviation program areas with opportunity for high-payoff S&T investments are:

(1) Data links and Information/Capability Management Networks
(2) Heavy Lift Replacement (HLR)
(3) Electronic warfare (EW)
(4) Unmanned Aircraft Systems (UAS) and associated payloads

Legacy Investment Category Priorities These are prioritized categories in terms of current aviation-related S&T technology modernization / transition as well as future aviation programs.

(1) **Survivability/Safety:** Improvement in the ability to avoid detection, tracking and engagement in a complex threat environment and survive hit/crash.

(2) **Battlefield Situational Awareness:** Improvement in the ability to know and comprehend the location, intent, and actions of blue/red forces, non-combatants, environment condition, terrain, and obstacles in the area of operational responsibility. These improvements include increased situational awareness for embarked Marines while maneuvering.

(3) **Lethality:** Improvement in the ability to precisely deliver a spectrum of intended effects (lethal or non-lethal).

(4) **Battle Command:** Improvement in the ability of the commander to decide on a course of action and execute command measured in response time.

(5) **Affordability:** Reduction in development, acquisition, operating and support cost while maintaining or increasing capability.

(6) **Supportability/Maintainability:** Improvement in reliability, availability and maintainability.

(7) **Training:** The efficiency with which commanders/staff, pilots, operators and maintainers are initially and continuously trained to proficiency.

(8) **Footprint:** Reduction in the weight and volume of the personnel, materiel, equipment and supplies that support an aerial system and must be moved.

(9) **Deployability:** Reduction in the time, effort, and support systems to prepare, transport, and restore a force capability.

(10) **Mobility:** The ability to responsively maneuver and transport troops, supplies and equipment on the battlefield in complex terrains/sea states.

Aviation S&T Relationships

Relationships with the below-listed agencies are essential for the Marine Corps S&T IPT to drive adequate aviation leverages, share unique leverage opportunities, and ensure an overall, balanced Marine Corps aviation S&T investment.

Naval Aviation Enterprise (NAE). The leadership of the NAE publishes a biennial S&T Plan and its own science and technology objectives (STOs) to provide guidance to the NAE. Marine Corps aviation is dependent upon the NAE for much of its S&T investment and coordinates as appropriate for development efforts of mutual Navy and Marine Corps benefit.

Office of Naval Research (ONR) and the Naval Research Laboratory (NRL). Marine Corps drives research primarily via the Marine Corps S&T IPT, but also through a direct relationship with ONR and NRL.

Air Force Research Lab (AFRL) and Army Research Lab (ARL). Key S&T partners providing insight into cross service opportunities for collaboration across a wide variety of platforms, programs, and interests.

Defense Advanced Research Projects Agency (DARPA). Provides cutting-edge research applicable to all of DOD with potentially large payoffs for Marine aviation.

Army Research, Development and Engineering Command (ARMDEC). Responsible, by charter, for rotorcraft S&T. This is a key relationship as rotorcraft S&T investment has been minimal for over a decade.

Marine Corps-specific aviation STOs:

AVN STO 1: Collaborative networking

Develop technologies that facilitate and provide for a network-enabled and digitally- interoperable expeditionary aviation combat element postured to execute responsive, persistent, lethal and adaptive full-spectrum operations.

AVN STO 2: Advanced Electronic Warfare (EW) systems

Develop technologies that are compatible with Marine Corps follow-on electronic attack (EA) platforms as the platform requirements are refined. Develop multi-function, transceiver arrays that enable future EW as well as provide adequate bandwidth, SIGINT and ISR and Next Generation Jammer technologies. Software Reprogrammable Payload (SRP) is a single common payload module that is flexible and reconfigurable to support simultaneous missions and applications making maximum use of available bandwidth and ensuring interoperability within joint standards and protocols providing commonality across platforms. Collaborative On-line Reconnaissance Provider Operationally Responsive Attack Link (CORPORAL) is a Joint Capabilities Technology Demonstration (JCTD) that provides "on-demand" collaborative situational awareness (NTISR) & kinetic and non-kinetic fires to the small unit's target area of interest. It consists of plug-and-play, software reprogrammable, scalable, IP-based, and open-architecture non-kinetic fire solutions and will outpace traditional point solutions, accommodate existing legacy systems, and provide a bridge to future operational systems, enabling machine-to-machine collaboration and coordination.

AVN STO 3: Sand- and dust-penetrating radar, providing precision (landing quality) navigation video in brown-out, white-out and dust-out visibility conditions

Develop technologies that enables passive obstacle detection at range (e.g., uncharted wires/cables) and enables precision support of distributed operations in unprepared landing zones for current rotary wing and tilt rotor aircraft, as well as supporting technology transition into future UAS. Develop complementary technologies to precision quality navigation in brown-out/dust-out conditions that enables precise, landing quality, non-visual air and groundspeed reference.

AVN STO 4: Command and Control (C2) data fusion and networking

Develop technologies to support data fusion to improve sensor tracking of tactical aircraft and UASs as well as the fusing of data from the various ground and intelligence system employed by the MAGTF. The most significant challenge for aviation C2 is data fusion. The requirement statement in the CAC2S CPD describes data fusion as fusing data from real time sensors/ near real time TADILs and non-real time data components to deliver an adaptive situational display. Develop a robust data network established with common databases that push near-real time updates to C2 operators and aircraft. Overcome security and IA requirements with multiple data standards and security levels. Develop a single system that can interface with both current ground C2 and intelligence systems and has communication channels with adequate capacity to transmit and receive terabytes worth of data.

AVN STO 5: Standardized force tracking system

Develop technologies that provide 100% assured, covert, real-time identification of friendly forces for fratricide avoidance as well as battlefield coordination, maneuver deconfliction, command SA, future re-supply/CASEVAC et cetera, during future distributed operations. Incorporate tracking technologies applicable to red-force/HVT (classified).

AVN STO 6: Group 4 (Tier III) Unmanned Aircraft Systems (UAS)

Develop an expeditionary, all-weather, high endurance, multi-mission UAS capable of operating from austere locations and providing networked, interoperable systems to enhance the MAGTF and joint force commander's battle-space awareness. Further refinement and development of Unmanned System Interoperability Profiles (USIP) standards for aircraft configuration, payload interfaces, data transmission, and UAS control will enable seamless integration between manned/unmanned systems and command and control networks. Advancements in standard interfaces will allow for interchangeable, mission-tailored payloads such as electro-optical/infrared; electronic warfare; signals intelligence; synthetic aperture radars; communications relay; laser designators; wide area scan; ground moving target indicators; and network enablers.

AVN STO 7: Advanced multi-function EW transceiver

Leverage next generation jammer (NGJ) technologies to develop capabilities compatible with Marine Corps follow-on EW concepts (e.g., system-of-systems distributed EW, including low observable systems) as the system requirements are refined. Multi-function transceiver arrays potentially enable future EW as well as increasing bandwidth access, SIGINT and ISR capabilities.

AVN STO 8: Ground-based C2 and surveillance systems

The concept of active aperture array is critically dependent on the availability of compact and minimum weight, low consumption and high reliability transmit/receive (T/R) modules. Develop technologies that provide the thermal margins required to meet mission radar performance for the T/R modules using of state of the art, air-cooled technology. Develop manufacturing techniques that can produce high quality, micro-miniature RF circuits (T/R modules) that are not susceptible to stress and cracking during production. Develop technologies that support the calibration of an ambient air-cooled active electronically scanned array (AESA).

AVN STO 9: Advanced laser systems suitable for countermeasure, sensor, and attack applications

Develop laser enabling technologies including multi-scan mirrors; high power/high efficiency optical amplifiers and switches; dual/multi band laser systems; lightweight open and closed-loop IRCM systems; and high duty cycle systems. Resulting technologies must be applicable to both rotary and fixed wing air vehicles, ground based motor vehicles and provide exceptional reliability. Systems developed should interoperate with existing air-vehicle subsystems with minimal integration effort and provide countermeasure, sensor and attack capabilities.

AVN STO 10: Scalable, light weight, interference cancellation system and adaptive/cognitive radio technologies for both co-situated RF emitters and RF saturated environments to eliminate VHF, UHF, SATCOM RF interference between multiple radio and electronic attack systems.

Develop low-cost interference cancellation technologies and adaptive/cognitive radio systems to enable assured communications and information distribution for emerging platforms and systems as well as technology transition for legacy platforms that suffer communications degradation with multiple communications systems or jamming.

AVN STO 11: Net-enabled weapons

Develop technologies that enable aviation ordnance to rapidly join the battlefield network in order to allow terminal control, ISR, and bomb damage assessment (BDA). Additionally, develop small form factor jammers (e.g., digital RF Memory (DRFM) systems) capable of being utilized in ordnance, artillery, or expendables.

AVN STO 12: Cargo UAS

Develop advanced UAS vertical lift technologies in order to provide force sustainment to multiple company-level operations over a widely dispersed area. Explore autonomous and semi-autonomous line of sight (LOS) and beyond line of sight (BLOS) UAS control in remote deployed environments to facilitate navigation and cargo delivery during 24/7 operations. Cargo UAS platforms are required to operate at high density altitudes, delivering multiple in-stride cargo drops, over round-trip distances with a threshold of 150 nautical miles and an objective of 900 nautical miles, reducing the number of ground transport-delivered items.

AVN STO 13: UAS Universal Ground Control Station (UGCS)

Develop UAS Universal Ground Control Station (UGCS) with Type I encrypted Tactical Common Digital Link (TCDL) capable of controlling USMC and Joint UAS Family of Systems. Advancement in UGCS interoperability enables ground control of current and future UAS platforms to provide increased operational capability and scalable UAS options to the war fighter. It will also facilitate the rapid development and acquisition of system compatible UAS platforms.

AVN STO 14: Active kinetic and non-kinetic aircraft self-protection

Develop technologies such as high energy liquid and fiber laser systems and continued investment in technologies which enabled systems such as Tactical Aircraft Directable Infrared Countermeasures (DIRCM). Develop technologies that enable "unlimited magazine" self-protect capabilities against both IR SAMs and RPGs while reducing requirement for magazine (e.g., flares). Additionally, investigate Electromagnetic Pulse (EMP) and High Power Radio Frequency (HPRF) technologies development for both offensive and defensive lethal and non-lethal effects.

AVN STO 15: Radio Frequency (RF) countermeasure, decoy, and expendables systems

Develop technologies related to RF countermeasures applicable to fixed and rotary wing aircraft. Systems include towed decoys, released/launched decoys, RF jamming systems, and RF expendables. Develop both active and passive RF systems that contribute to, and collaborate with, the EW system-of-systems construct in an EW battle-managed environment as well as provide offensive RF capabilities. Develop technologies that assure that RF systems can interoperate with "blue" force systems in all domains and environments.

AVN STO 16: Advanced rotor/prop technologies for performance across wider envelope

Develop advanced technologies for rotors/props as components of assault support propulsion as well as tactical UAVs. As rotorcraft/helicopters (MV-22/VUAV) requirements grow in terms of hover load and harsh environments (heat/dust/high altitude), as well as top-end speed, advanced rotor performance enhancement (dynamic blade shaping) will garner performance as well as efficiency (fuel/load savings). Develop V-22 capability enhancements to sustain performance KPPs and improve high altitude operations. V-22 design is based on tropical day at 3000 ft/91.5º F. OEF and other potential deployment locations require lift well beyond this ambient pressure/temperature. Develop technology that can increase vertical lift by at least 2000 lbs, increase operational radius by at least 40 nm, and preserve 10,000 lb load KPP.

AVN STO 17: Small form factor, lightweight expeditionary ordnance for fixed and rotary wing aircraft

Develop technology supporting a family of small, lightweight expeditionary ordnance for both fixed and rotary wing aircraft. Given the logistic challenges of transporting aviation ordnance to expeditionary forward operating bases (FOBs), as seen in Iraq and Afghanistan, we need small, lightweight ordnance that can be transported overland or by aircraft (e.g, KC-130) to austere sites and then loaded quickly and easily by minimal personnel. Small form factor ordnance, on the order of 50-250 lbs explosive equivalent, will further increase number of weapons fixed and rotary wing aircraft can deliver during a single sortie while both scaling effects and minimizing collateral damage. Develop technologies that can enable basic ordnance to have a variety of fusing, guidance and propelling packages thereby increasing functionality of this family of ordnance.

AVN STO 18: Low collateral damage/low energetic weapons

Develop technology supporting a family of low collateral damage/low energetic weapons. Existing methods of obtaining low collateral damage munitions include reducing the amount of explosive filler of existing weapons. Develop technologies to improve accuracy thereby reducing the risk of collateral damage when an appropriate lethality warhead and fuse are applied. Develop technologies that ensure weapon fusing and weapon yield is electable from within the cockpit.

AVN STO 19: Cost effective mass memory (terabytes)
Develop improvements for digital map and other avionics systems capable of higher speed data transfer, as well as sensor data/information storage, retrieval, and dissemination compatible with airborne and shipboard environmental conditions. Develop technologies that enable autonomous operations with comprehensive information onboard. Information storage onboard autonomous platforms reduce the risk in distributed and net-centric operations against an EW-capable adversary where link information is potentially denied.

AVN STO 20: Distributed networking of aviation simulators.
Develop simulators and technologies to enable aviation Marines to train the way they fight. This includes engaging the senses in realistic, challenging, and rapidly reconfigurable scenarios which allows scenario-based training and mission rehearsal. The goal is to optimize the application of simulation training across the live/virtual/constructive (LVC) training construct throughout Marine aviation.

AVN STO 21: Multi-function, low-drag VHF, UHF, and SATCOM (broadband) antenna
Develop technologies that enable reduced airframe antennae and reduced airframe signature, including conformal arrays and active elements, as communications and data link requirements grow, while allowing communications growth without additional apertures.

AVN STO 22: Composite materials in expeditionary environments
Develop technologies for health monitoring of composite structures enabling "condition based maintenance" and "predictive failure" of composite structures on aircraft in order to reduce time in depot-level maintenance facilities as well as reducing NDI. The increased use of composite structures requires an enhanced capability to rapidly make repairs to these structures in all environmental conditions (heat, cold, sand, humid, etc.).

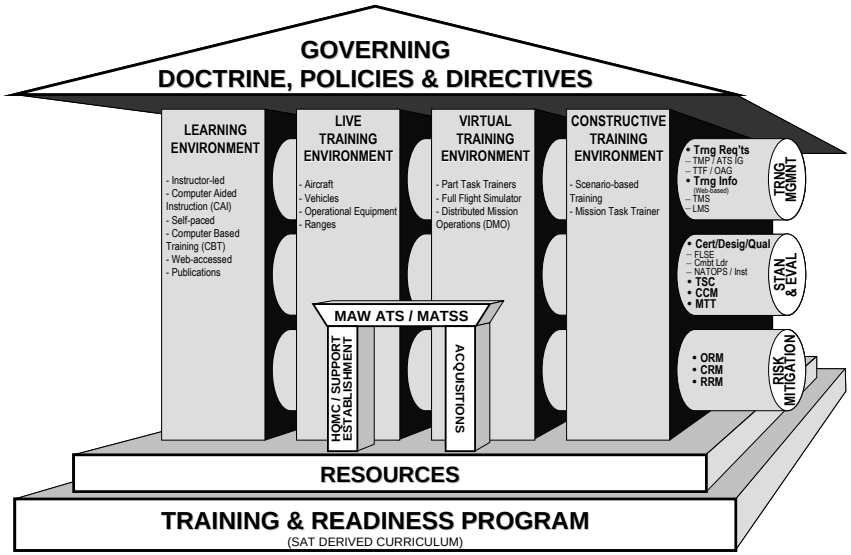
AVN STO 23: Lightweight De-ice/Anti-ice capability for aircraft
Develop technologies to provide a lightweight all de-ice/anti-ice capability for both rotor blades and fuselage that reduces both weight and electrical power requirements. Current de-ice/anti-ice capabilities are heavy due to power requirements for heating and wiring.

AVN STO 24: Variable-speed air refueling drogue
Develop technologies that enable refueling drogues to refuel fast tactical aircraft as well as slower rotorcraft.

Section 13 --- Aviation Training System (ATS)

Aviation Training System (ATS) Plan

Today's dynamic operational environment requires Marine aviation to focus its training more effectively and efficiently in order to achieve and sustain the highest levels of combat readiness. The Aviation Training System (ATS) is the concept for integrating Marine aviation training processes and structures into a single, unified and holistic system that spans all communities in Marine aviation. The mission of ATS is to develop a completely integrated training system that links training cost with readiness in order to provide the MAGTF Commander with combat ready units. Developing an integrated training system requires institutionalizing processes that support our missions and provide on-time delivery of tactically relevant training. With Training and Readiness (T&R) as the foundation, the T&R Program Manual is the governing directive for implementing ATS. The integration of ATS processes, governed by policy and supported by appropriate resources, will provide the catalyst for incremental improvements over time. ATS integrates and coordinates policy, manpower, equipment, and fiscal requirements of post initial accession training for Marine aviation officers and enlisted personnel as well as initial accession aircrew training (Core Skill Introduction) for aviation units that conduct T/M/S specific aviation training (e.g. Fleet Replacement Squadron (FRS), KC-130J Aviation Training Unit (ATU)). ATS processes and procedures shall be applicable to all current and future Marine aviation training programs to include Naval or joint-level programs in which the USMC participates. ATS is outlined in the governing policy MCO/NAVMC Dir 3710.6 and NAVMC 3500.14. The ATS model is depicted in the following figure.



ATS Focus

ATS will integrate processes and programs for training which will institutionalize Operational Excellence across *all* Marine aviation. "Operational Excellence" involves 1) increased combat readiness; 2) decreased cost of training – efficient and affordable; and 3) preservation of personnel and assets – Risk Mitigation through reduction in mishap causal factors from supervisory, procedural, and human error. T&R Manuals are foundational source documents for implementing ATS.

- Provide operational commanders with a current, responsive and relevant training system for aircrew, aircraft maintenance, aviation ground support and C2 personnel.
- Develop a holistic training system across every Marine aviation community throughout the training continuum that supports aircrew (pilot / NFO / enlisted), operators and maintainers.
- Assist in the standardization of Marine aviation communities.
- Develop concurrency management processes to ensure the training system (curriculum, courseware and training devices) remains relevant.
- Address training and safety issues through Systems Approach to Training-derived curricula and improved use of ORM/CRM principles through Risk Resource Management (RRM).
- Stand up Marine Aviation Training Systems Sites (MATSS) to facilitate the ATS program.

ATS Processes

ATS is process intensive and includes the following:

- Standardization and evaluation: process of training toward and achieving certifications, qualifications and designations consolidated and standardized under the MAW ATS structure. This is applicable to flight leadership and non-aircrew certifications, qualifications and designations and Contract Instructor (CI) certifications, Naval Air Training and Operating Procedures Standardization (NATOPS) Instrument training and evaluation, recurring generic training such as Instrument Ground School (IGS), Crew Resource Management (CRM), Operational Risk Management (ORM), and basic Navy Occupational Safety and Health (NAVOSH) or Naval Aviation Maintenance Program (NAMP) training.
- Concurrency Management (CCM): process whereby a change in tactics, aircraft/operational systems configuration, publications or procedures is evaluated to identify the impact of the change upon training requirements. Upon identification of these training requirement impacts, appropriate and timely changes are made to curricula, courseware and training devices to ensure concurrency with operational systems and doctrine.

• Training Information Management Systems: process that integrates the employment of multiple information systems under a training information architecture. Resources that support the management and integration of training information are Training Management Systems (TMS), Learning Management Systems (LMS), and the overarching ATS website. The TMS tracks T&R progression and helps commanders ensure that training is conducted in accordance with appropriate orders and regulations, currency and qualification requirements are met and ORM principles are properly applied. The TMS for aircraft maintenance training is the Aviation Maintenance Training Continuum System (AMTCS) Software Module (ASM). Marine Sierra-Hotel Aviation Readiness Program (MSHARP) is the TMS authorized aviation training management system to be used to track all training governed by aviation T&R manuals. For the F-35B the Autonomic Logistics Information System (ALIS) TMS is the approved TMS for aircrew and maintenance. An LMS functions as an electronic repository of specific courseware and technical manuals. The LMS for Marine aviation is the Marine Corps Aviation Learning Management System (MCALMS). The ATS website serves as a CAC enabled portal for access of other training information management systems such as the LMS or local Training Management Event Scheduling System (TMESS). The TMESS performs web-based management of curricula; device, instructor and classroom scheduling; and status reporting of aviation training devices hosted at every MATSS.

• Risk Mitigation: process that includes risk assessment, risk decision making, and implementation of effective risk controls. Emphasis placed on risk mitigation and aviation fundamentals during all aspects of training is required in developing and fostering a climate that promotes flight discipline and adherence to established procedures and requirements. Such a climate leads operational excellence and mitigation of mishap causal factors. Training devices allow the control of specific elements in scenarios that enhance the exercise of risk management abilities. Risk mitigation it is a by-product of professionalism and safe practices and must be stressed in all aviation training.

• Training Management Process (TMP): process provides an effective forum for the operating forces to identify training issues across the DOTMLPF spectrum as the impetus for requirements generation. The TMP helps determine common solutions to aviation training issues, eliminating redundant "stovepipe" solutions which are wasteful and inefficient. The TMP is focused on the needs of the warfighter through platform and community Training Management Teams (TMT) and supported by higher headquarters, the acquisition community and industry.

MATSS Overview

Implementation of ATS at each MAW is through the Marine Aviation Training System Site (MATSS). While ATS is process intensive, the MATSS, the focal point of ATS execution under the operational control of the Marine Aircraft Wing (MAW), is product, resource and facility intensive. ATS products / resources available at the MATSS include simulators and training devices, web-based training management systems, academic courseware, electronic classrooms, and the military, civilian and contractor manpower to support the training system. The purposes of MATSS are: 1) Optimize simulator and academic resource utilization; 2) Promote Standardization and Evaluation; and 3) Advocate training issues to ensure ATS remains relevant and responsive to the needs of the fleet. The objective of the MATSS, to assist commanders in training their units, is one of the primary tools to achieve aviation training requirements across the spectrum of aviation T&R events. The MATSS construct is currently migrating across Marine aviation. With increased USMC and Joint-level awareness for ATS the ability to leverage common solutions across the various platforms and communities will result in significant cost savings, freeing funds for other requirements to enhance training across Marine aviation and the MAGTF.

MATSS Activation / IOC Timeline

	MATSS	Activation	IOC
2d MAW	• New River	Activated	IOC
	• Beaufort	Activated	IOC
	• Cherry Point	Activated	IOC
3d MAW	• Miramar	Activated	IOC
	• Camp Pendleton	Activated	IOC
	• Yuma	Activated	IOC
1st MAW	• Iwakuni	Activated	IOC
	• Futenma	Activated	IOC
	• Kaneohe Bay	Activated	Q4FY11
4th MAW	• Fort Worth	Activated	Q4FY12
	• McGuire	Q4FY11	Q4FY12

Training Future / Summary

For Marine aviation, ATS is risk mitigation that represents a game-changing opportunity. Continued attention and accountability at all levels is required. All efforts are targeted at improving combat readiness and the preservation of assets and people leading to operational excellence.

Marine Aviation Distributed Virtual Training Environment (ADVTE)

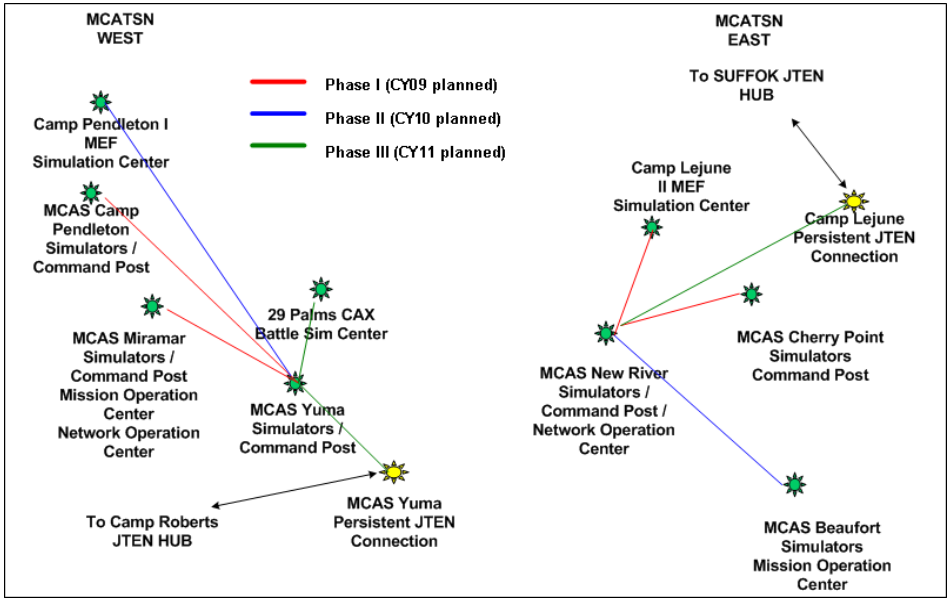
Networked Training

Networked training began with the execution of the Marine Corps Aviation Simulation Master Plan (MCASMP). Implementation began with a study for CONUS capability which concluded Nov 07. MATSS FOC will incorporate "command post" network hubs, which will be linked to other MATSS, MEF simulation centers, and to the Joint National Training Capability (JNTC) through nationwide network infrastructure. These command posts will be used to develop, plan, rehearse, execute and review scenario-based network training sessions for air-to-air (ACE), air-to-ground (MAGTF), for T&R credit, service-level, and joint exercise events.

Live/Virtual/Constructive (LVC) Goals

Increased readiness using higher-fidelity networked simulators to support T&R and LVC training.

- Systems training capability outside of aircraft for section and division level training.
- Improved flight safety through enhanced CRM opportunities in networked training.
- Lower costs (in APN and OM&N).
- MAGTF integration.



ADVTE LAN/WAN & CP STAND-UP		FY10				FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
LOCATION	EQMNT	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cherry Pt/New River	LAN/WAN/CP	LAN				WAN/CP																																							
Miramar/Pendleton	LAN/WAN/CP					LAN				WAN/CP																																			
Yuma/Beaufort	LAN/WAN/CP									LAN/WAN/CP																																			
K-Bay/Iwakuni/Okinawa	LAN/WAN/CP													LAN/WAN/CP																															

LAN = LOCAL AREA NETWORK
WAN = WIDE AREA NETWORK
CP = COMMAND POST

ADVTE LIVE = LAN/WAN INSTALL AND COMMAND POST IMPLEMENTATION COMPLETE

Marine Corps Aviation Simulator Master Plan
Laydown Key

MCASMP Requirements

Marine Corps Aviation Simulator Master Plan (MCASMP) policy has been set by DCA since Dec 2001. All new simulators will function as a system of tactically relevant networked trainers. All new simulator procurements shall be compatible with this Simulator Master Plan at a minimum. The following are standing requirements:

- CONUS bases: section of networked simulators
- OCONUS & reserve bases: minimum of one simulator
- Marine Corps Common Visual Data Base (MCCVDb via NPSI)
- Tactical Environment (TEn) : threat, emitters, weapons flyouts, USMC & joint air & ground interoperability.
- Common hardware approach across all T/M/S and community simulators to ensure distributed/networked MAGTF and joint simulator training is possible.
- Developed IAW current and/or draft T&R, Maneuver Description Guide (MDG), and NATOPS manuals.

The goals of MCASMP are to reduce overall procurement and sustainment training costs by procuring training devices and training media (courseware, curriculum, and syllabus) with common hardware and software systems in order to avoid the cost of developing new or platform unique type-systems. Pursue only the most promising developmental and mature technologies for training, avoid increased cost, and mitigate operational risks.

1ST MAW ATS
- MATSS Iwakuni
- MATSS Futenma
- MATSS Kaneohe Bay

2D MAW
- MATSS Cherry Point
- MATSS New River
- MATSS Beaufort

3D MAW ATS
- MATSS Miramar
- MATSS Camp Pendleton
- MATSS Yuma

4TH MAW
- MATSS Ft Worth
- MATSS McGuire (Q4FY11 Activation)

Gray	= Unfunded New Procurement	TTT	= Team Tactics Trainer
Green	= Transfer or Note	FFS	= Full Flight Simulator
*	= "E" Upgrade (FY17)	CPT	= Cockpit Procedures Trainer
CNS	= Communications Navigation Surveillance	McG	= McGuire
ATM	= Air Traffic Management	FUT	= Futenma
APT	= Aircrew Procedures Trainer	IWA	= Iwakuni
FTD	= Flight Training Device	FRF	= Futenma Replacement Facility
CFTD	= Containerized Flight Training Device	DEMIL	= Demilitarization
MCAT	= Marine Common Aircrew Trainer	TXFR	= Transfer
OFT	= Operational Flight Trainer	FMS	= Full Mission Simulator
TOFT	= Tactical Operational Flight Trainer	CMSPTT	= Cockpit Management System Part Task Trainer
NICLE	= Network Interactive Cockpit Learning	IMS	= Institutional Mission Simulator

Planned Device Disposal
Trainer Down for Mod/Upgrade
Trainer Relocation

Database Notes:
1 - NY, Okinawa, Mediterranean, Panama and Norway
2 - East & West Coasts, Bridgeport, Afghanistan and Iraq
3 - Pendleton, Atlanta and New Orleans

Simulator Laydown 1st MAW

KANEOHE BAY
- CH-53D WST (DMIL Q4FY12)
- CH-53E CFTD (2QFY12)
- CH-53 Ext Trainer (4QFY11)
- CH-53 Desktop Trainer (2QFY12)
- MCAT (Q1FY15)
- MCAT (Q1FY17)
- MV-22 CFTD (Q3FY14)
- MV-22 CFTD (Q3FY14)
- AH-1W APT (Q4FY13 TXFR fm CP)

GUAM
- MCAT (Q1FY18)
- MV-22 CFTD (Q1FY16)
- MV-22 CFTD (Q1FY16)

IWAKUNI
- ATC TOWER SIM
- F/A-18C TOFT (Q4FY11 TXFR fm Atsugi)
- F/A-18D APT (DEMIL)
- KC-130J WST (TXFR From FUT TBD)
- EA-6B ICAP II WST (DMIL Q1FY14)
- F/A-18D TOFT
- F-35B FMS (Q2CY15)
- F-35B FMS (Q1CY16)
- F-35B DMRT (Q4CY14)
- F-35B DMRT (Q1CY16)

FUTENMA / FRF
- ATC TOWER SIM
- CH-46E APT (DEMIL Q1FY14)
- KC-130J WST (TXFR to IWA TBD)
- CH-53E APT
- CH-53 Ext Trainer (3QFY12)
- CH-53 Desktop Trainer (3QFY12)
- MCAT (Q1FY16)
- MV-22B CFTD (Q1FY13)
- MV-22B CFTD (Q1FY13)

Simulator Laydown 2d MAW

CHERRY POINT
- ATC TOWER SIM
- AV-8B WST
- AV-8B WST
- AV-8B WST
- KC-130J WST
- EA-6B ICAP III OF/NT
- EA-6B ICAP III TTT
- EA-6B ICAP II/III WST (Q3FY16 TXFR fm WI TBD)
- CH-46 APT
- EA-6B ICAP II OF/NT (DMIL Q1FY14)
- EA-6B ICAP II TTT (DMIL Q1FY14)
- EA-6B ICAP III WST
- RQ-7 UAS OFT
- F-35B FMS (Q4CY19)
- F-35B FMS (Q4CY19)
- F-35B FMS (Q2CY20)
- F-35B FMS (Q2CY20)
- F-35B FMS (Q1CY21)
- F-35B FMS (Q3CY21)
- F-35B DMRT (Q4CY19)
- F-35B DMRT (Q2CY20)
- F-35B DMRT (Q2CY21)
- F-35B DMRT (Q3CY22)
- F-35B DMRT (Q3CY23)
- F-35B DMRT (Q2CY24)

BEAUFORT
- ATC TOWER SIM
- F/A-18C TOFT
- F/A-18C TOFT
- F/A-18D TOFT
- F/A-18D TOFT
- F-35B FMS (Q1CY14)
- F-35B FMS (Q1CY14)
- F-35B FMS (Q4CY14)
- F-35B FMS (Q1CY15)
- F-35B FMS (Q3CY15)
- F-35B FMS (Q4CY15)
- F-35B FMS (Q2CY16)
- F-35B FMS (Q4CY17)
- F-35B DMRT (Q1CY15)
- F-35B DMRT (Q1CY16)
- F-35B DMRT (Q1CY17)
- F-35B DMRT (Q1CY18)

NEW RIVER
- ATC TOWER SIM
- MV-22 FFS
- MV-22 FFS
- MV-22 FFS
- MV-22 FTD
- MV-22 CFTD
- MV-22 CFTD
- MV-22 ICLE
- MV-22 CMSPTT
- MCAT (Q1FY13)
- AH-1W WST (DEMIL Q4FY19)
- UH-1N APT (DMIL Q3FY15)
- AH-1Z FTD (Q2FY15)
- UH-1Y FTD (Q4FY11 TXFR fm CP)
- CH-53 WST
- CH-53 APT
- CH-53 CFTD Q2FY13/TBD)
- MCAT-P (Op Upgrade)
- CH-53 Ext Trainer
- CH-53 MPTT
- CH-53 Desktop Trainer (Q1FY12)
- CH-53K WST (1QFY18)
- CH-53K CFTD (1QFY18)
- CH-53K CFTD (1QFY19)
- CH-53K CFTD (1QFY20)
- CH-53K CFTD (1QFY16)
- CH-53K CPT (2QFY19)
- CH-53K CPT (2QFY20)
- CH-53K CPT (2QFY18)

QUANTICO
- ATC TOWER SIM
- VH-60N APT
- VH-3D APT

Simulator Laydown 3d MAW

MIRAMAR
- ATC TOWER SIM
- KC-130J WST
- MCAT-P (Q1FY12)
- F/A-18C TOFT
- F/A-18C TOFT
- F/A-18D TOFT
- F/A-18D TOFT
- F/A-18C TOFT
- F/A-18C TOFT (RFT Q3FY11) (TXFR Fm Lemoore)
- CH-46 WST (DEMIL Q1FY13)
- CH-53E WST
- CH-53E APT
- CH-53 Ext Trainer
- CH-53 Desktop Trainer (1QFY12)
- MCAT (Q1FY16)
- MV-22 CFTD
- MV-22 CFTD
- MV-22 CFTD
- MV-22 CFTD
- MV-22 CMSPTT
- F-35B FMS (Q4CY17)
- F-35B FMS (Q1CY18)
- F-35B FMS (Q1CY18)
- F-35B FMS (Q4CY18)
- F-35B FMS (Q1CY19)
- F-35B FMS (Q1CY20)
- F-35B DMRT (Q1CY19)
- F-35B DMRT (Q2CY20)
- F-35B DMRT (Q1CY21)
- F-35B DMRT (Q1CY22)
- F-35B DMRT (Q1CY23)
- F-35B DMRT (Q1CY24)

EDWARDS
- F-35B DMRT (Q4CY11)

PENDLETON
- ATC TOWER SIM
- CH-46E WST (DEMIL Q1FY17)
- AH-1W WST (TFER to McG Q1FY17)
- AH-1W APT (TFER toKBay Q2FY13)
- UH-1N WST (DMIL Q3FY15)
- AH-1Z FTD
- UH1Y FTD (Q2FY11 TXFR to NR)
- AH-1Z FFS
- UH-1Y FFS
- UH-1Y CPT Q3FY11
- AH-1Z CPT Q4FY11
- UH-1Y FTD Q2FY13
- MCAT (Q1FY14)
- MV-22 CFTD (Q1FY15)
- MV-22 CFTD (Q1FY15)

YUMA
- ATC TOWER SIM
- AV-8B WST
- AV-8B WST
- RQ-7 UAS OFT
- F-35B FMS (Q2CY12)
- F-35B FMS (Q3CY12)
- F-35B FMS (Q4CY12)
- F-35B FMS (Q2CY14)
- F-35B FMS (Q4CY16)
- F-35B FMS (Q2CY17)
- F-35B DMRT (Q2CY13)
- F-35B DMRT (Q1CY14)
- F-35B DMRT (Q4CY15)
- F-35B DMRT (Q3CY16)
- F-35B DMRT (Q3CY17)
- F-35B DMRT (Q1CY18)

29 PALMS
- RQ-7 UAS OFT
- RQ-7 UAS OFT

Simulator Laydown 4th MAW

MCGUIRE
- AH-1W APT (TXFR fm JNT Q3FY11)
- AH-1W WST (TXFR fm CP Q1FY17)

WARNER ROBBINS
- AH-1W APT

HMX/RESERVES (TBD)
- MV-22 CFTD (Q3FY13)
- MV-22 CFTD (Q3FY13)

TBD
- F-35B FMS (Q4CY22)
- F-35B FMS (Q4CY22)

FT WORTH
- KC-130T OFT
- KC-130T CPT (DEMIL Q2FY18)
- KC-130T APT
- F/A-18C TOFT

JOHNSTOWN
- AH-1W APT (TXFER to McG Q2FY11)

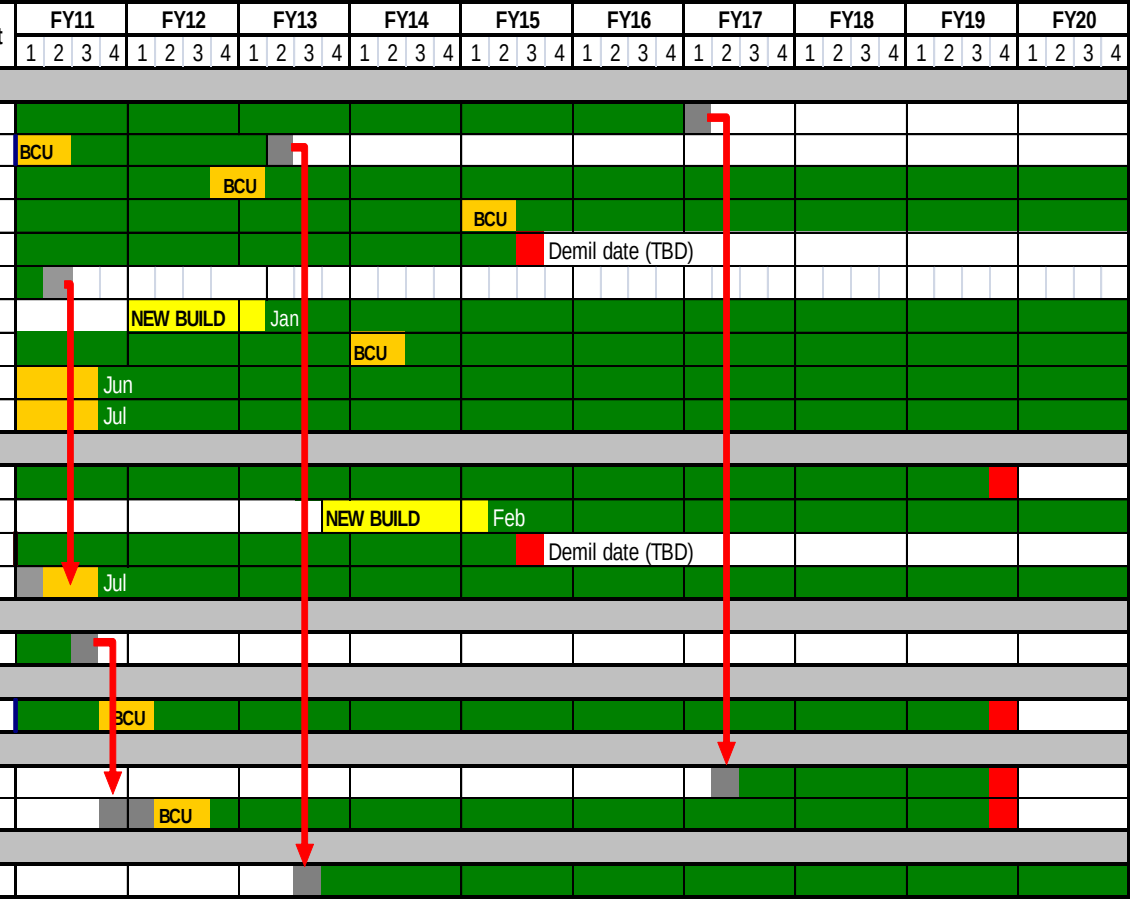
WILLOW GROVE
- KC130T OFT (TXFR to McG 1QFY13)

FT HOOD
- RQ-7 UAS OFT (Q4FY11)

AH-1/UH-1 AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: Mark Elliott PH: 301-995-2789 e-mail: mark.elliott@navy.mil

T/M/S	Type Sim	COG Name	Db	Ten	Last Tech Ref	IA Cert
CAMP PENDLETON						
AH-1W	WST	2F136A-2	PSI/NPSI Note-1	v4.0	Oct 06	
AH-1W	APT	2F170-1	Ft. Rucker Note-3	v4.0		
AH-1Z	FTD	2F197-1	NPSI Note-2	v4.0		
AH-1Z	FFS	2F215	NPSI Note-2	v4.0		
UH-1N	WST	2F161	NPSI Note-2	v4.0		
UH-1Y	FTD	2F196-1	NPSI Note-2	v4.0		
UH-1Y	FTD	2F196-2	NPSI Note-2			
UH-1Y	FFS	2F206	NPSI Note-2	v4.0		
UH-1Y	CPT	11H184	N/A	N/A		
AH-1Z	CPT	2C83	N/A	N/A		
NEW RIVER						
AH-1W	WST	2F136A-1	PSI/NPSI Note-1	v4.0	Oct 06	
AH-1Z	FTD	2F197-2	NPSI Note-2			
UH-1N	APT	2F175	NPSI Note-2	v4.0		
UH-1Y	FTD	2F196-1	NPSI Note-2	v4.0		
JOHNSTOWN						
AH-1W	APT	2F170-3	Ft. Rucker Note-3			
WARNER ROBBINS						
AH-1W	APT	2F170-2	NPSI Note-2			
MCGUIRE						
AH-1W	WST	2F136	NPSI Note-2	v4.0		
AH-1W	APT	2F170-3	NPSI Note-2			
KANEOHE BAY						
AH-1W	APT	2F170-1	NPSI Note-2	v4.0		



MV-22 AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: Major Glen Lindstrom PH: 301-757-8157 e-mail: glen.p.lindstrom@navy.mil

T/M/S	TYPE SIM	COG Name	Db	TEn	Last Tech Ref	IA Cert	FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NEW RIVER																																													
MV-22	FFS #1	2F182	NPSI Note-2	v4.0																																									
MV-22	FFS #2	2F182	NPSI Note-2	v4.0																																									
MV-22	FFS #3	2F182	NPSI Note-2	v4.0																																									
MV-22	FTD #1	2F183	NPSI Note-2	v4.0																																									
MV-22	CFTD #1	2F200	NPSI Note-2	v4.0																																									
MV-22	CFTD #6	2F200	NPSI Note-2	v4.0																																									
MV-22	ICLE	2F200	NPSI Note-2	v4.0																																									
MV-22	CMS-PTT #1	2C81	N/A	N/A		N/A																																						
MIRAMAR																																													
MV-22	CFTD #2	2F200	NPSI Note-2	v4.0																																									
MV-22	CFTD #3	2F200	NPSI Note-2	v4.0																																									
MV-22	CFTD #4	2F200	NPSI Note-2	v4.0																																									
MV-22	CFTD #5	2F200	NPSI Note-2	v4.0																																									
MV-22	CMS-PTT #2	2C81	N/A	N/A		N/A																																						
FUTENMA																																													
MV-22	CFTD #7	2F200	NPSI Note-2												New Build				Oct																										
MV-22	CFTD #8	2F200	NPSI Note-2												New Build				Nov																										
HMX/RESERVES																																													
MV-22	CFTD #9	2F200	NPSI Note-2														New Build				Apr																								
MV-22	CFTD #10	2F200	NPSI Note-2														New Build				Apr																								
KANEOHE BAY																																													
MV-22	CFTD #11	2F200	NPSI Note-2																New Build				Apr																					
MV-22	CFTD #12	2F200	NPSI Note-2																New Build				Apr																					
CAMP PENDLETON																																													
MV-22	CFTD #13	2F200	NPSI Note-2																				New Build				Oct																
MV-22	CFTD #14	2F200	NPSI Note-2																				New Build				Oct																
GUAM																																													
MV-22	CFTD #15	2F200	NPSI Note-2																								New Build				Oct												
MV-22	CFTD #16	2F200	NPSI Note-2																								New Build				Oct												

CH-46E AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: Steve Coln PH: 407-380-8159 e-mail: stephen.coln@navy.mil

T/M/S	Type Sim	COG Name	Db	TEn	Last Tech Ref	IA Cert	FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CAMP PENDLETON																																													
CH-46E	WST	2F173-1		v3.5.1		N/A					Jul																																			
MIRAMAR																																													
CH-46E	WST	2F173-2		v4.0		N/A																																								
CHERRY POINT																																													
HH-46E	APT	2F191		v3.2	2007	N/A																																								
FUTENMA																																													
CH-46E	APT	2F172		v3.2		N/A																																								
NEW RIVER																																													
CH-46E	CMT	980462		N/A		N/A																																								

CH-53D-E AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: Major Rich Marigliano PH: 301-757-4443 e-mail: richard.marigliano@navy.mil

T/M/S	TYPE SIM	COG Name	Db	TEn	Last Tech Ref	IA Cert	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
							1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
NEW RIVER																
CH-53E	WST	2F174-1	NPSI	v4.0	MAY 08	DEC 09						Dec				Dec
CH-53E	CFTD	2F224			N/A				New Build	TBD					Apr	
CH-53E	APT	2F190-1	NPSI	v4.0	MAY 10						Dec					Dec
FUTENMA																
CH-53E	APT	2F171	NPSI	v3.2	MAY 10							Dec				Dec
MIRAMAR																
CH-53E	WST	2F174-2	NPSI	v4.0	MAY 08						Jun				Jun	
CH-53E	APT	2F190-2	NPSI	v4.0	MAY 06			Apr				Apr			Apr	
KANEOHE BAY																
CH-53D	WST	2F121	NPSI	v3.2	MAY 07				Sep							
CH-53E	CFTD	2F220			N/A			New Build	Feb			Sep				

CH-53K SDD ROADMAP

APMTS: Major Rich Marigliano PH: 301-757-4443 e-mail: richard.marigliano@navy.mil

T/M/S	TRAINING DEVICES & COURSEWARE	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
NEW RIVER											
CH-53K	FLIGHT TRAINING DEVICE		May				Dec				
CH-53K	AIRCREW CURRICULUM & COURSEWARE		May				Dec				
CH-53K	MAINTENANCE TRAINING DEVICE		May				Dec				
CH-53K	MAINTENANCE CURRICULUM & COURSEWARE		May				Dec				

VH AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: Christy Schumacher PH: 301-995-2780 e-mail: christy.schumaker@navy.mil

T/M/S	Type Sim	COG Name	Db	TEn	Last Tech Ref	IA Cert	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
							1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
QUANTICO																
VH-60N	APT	2F181	NE USA	v3.2		N/A		Aug (CUP)								
VH-3D	APT	2F180	NE USA	v3.2		N/A		Mar (Carson Blade)								

UAS RQ-7 IMS ROADMAP

APMTS: Steve Groff PH: 301-757-0421 e-mail: steven.groff@navy.mil

T/M/S	TYPE SIM	COG Name	Db	TEn	Last Tech Ref	IA Cert	FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
29 PALMS																																													
RQ-7	IMS (#1)	2F217			N/A																																								
RQ-7	IMS (#2)	2F217			N/A																																									
CHERRY POINT																																													
RQ-7	FMS (#3)	2F217			N/A																																								
YUMA																																													
RQ-7	FMS (#4)	2F217			N/A																																								
4th MAW (FT HOOD)																																													
RQ-7	FMS (#5)	2F217			N/A					Sep																																				

MARINE COMMON AIRCREW TRAINER (MCAT)

APMTS: Kent Campbell PH: 407-380-4237 e-mail: kent.campbell@navy.mil

T/M/S	TYPE SIM	COG Name	Db	TEn	Last Tech Ref	IA Cert	FY11				FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19				FY20			
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NEW RIVER																																													
CH-53/CH-46	MCAT-P/APT	2H160		v4.0	N/A		Oct				Jan																Oct																		
CH-53/MV-22/UH-1	MCAT/APT	2HXXX-3			N/A										Oct																				Oct										
MIRAMAR																																													
CH-53/MV-22	MCAT-P/APT	2H160-2			N/A						Oct																				Oct														
CH-53/MV-22	MCAT/APT	2HXXX-6			N/A																						Oct																	
PENDLETON																																													
MV-22/UH-1	MCAT/APT	2HXXX-4			N/A														Oct																				Oct						
KANEOHE BAY																																													
CH-53/MV-22	MCAT/APT	2HXXX-5			N/A																		Oct																				Oct		
CH-53/MV-22	MCAT/APT	2HXXX-8			N/A																										Oct													
FUTENMA (FRF)																																													
CH-53/MV-22	MCAT/APT	2HXXX-7			N/A																						Oct																	
GUAM																																													
CH-53/MV-22	MCAT/APT	2HXXX-9			N/A																												Oct												

- Marine Common Aircrew Trainer - There is an increased emphasis for enlisted aircrew (EAC) T&R simulator training by the assault support communities. To take advantage of Non-Recurring Engineering (NRE) costs and available space at MATSS, a "common" approach to EAC training is required. The MCAT will provide focused T&R training capability for H-53, V-22, and UH-1. Variations will be based upon location and T/M/S fielding for required support.
- Assault support EAC trainer(s) should be tailored towards initial 1000-level T&R training codes and capable of conducting: aerial gunnery; hoist operations; hell-hole and external ops; confined-area landing training; shipboard operations; CRM training; all-weather operations; threat operations; day; night; night vision device; and other training events, all using personal flight gear. It will also cover:
    - Wind-loading, recoil, ballistics modeling, and impact assessment on weapons.
    - Autonomous or instructor-controlled routes,
    - Voice and audio network capability to front cockpit trainers through USMC Tactical Environment Network (TEN).
    - Enlisted aircrew recordable/debrief capability
    - 2000-6000 level Training and Readiness credit.

KC-130 AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: John Fuller PH: 301-757-8742 e-mail: john.fuller@navy.mil

T/M/S	Type Sim	COG Name	Db	Ten	Last Tech Ref	IA Cert	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
							1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
CHERRY POINT																
KC-130J	WST	2F199-1	NPSI Note-2	v4.0				Oct		Jul			Oct			
KC-130J	FuT	N/A								UNFUNDED REQ						
MIRAMAR																
KC-130J	WST	2F199-2	NPSI Note-2	v4.0					Oct	Oct				Oct		
KC-130J	FuT	N/A														
FUTENMA/IWAKUNI																
KC-130J	WST	2F199-3	NPSI Note-2	v3.5.1						Apr					Oct	
KC-130J	FuT	N/A														
FT WORTH (KC-130T)																
KC-130T	OFT	2F107-1	NPSI Note-2	v2.4						Apr				Jul		
KC-130T	CPT	2F107A	NPSI Note-2	N/A									Mar			
KC-130T	APT	2F176	NPSI Note-2	v2.1	MAR 03			Oct								
WILLOW GROVE (KC-130T)																
KC-130T	OFT	2F152	NPSI Note-2	N/A			In Storage	Jul			Jan					Jan

AV-8B AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: Aida Matta PH: 407-380-4955 e-mail: aida.matta@navy.mil

T/M/S	Type Sim	COG Name	Db	Ten	Last Tech Ref	IA Cert	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
							1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
AIRCRAFT OFP TIMELINE							H6.0 in A/C		H6.1 in A/C		H7.0 in A/C					
CHERRY POINT																
AV-8B	WST	2F150A	NPSI Note-2	v4.0				Jun		Aug			Jul			
AV-8B	WST	2F150C	NPSI Note-2	v4.0	Dec 10				Apr				Apr			
AV-8B	WST	2F150E	NPSI Note-2	v4.0	May 10			Oct					Feb			
YUMA																
AV-8B	WST	2F150D	NPSI Note-2	v4.0	Dec 09			Sep					Jan			
AV-8B	WST	2F150B	NPSI Note-2	v4.0					Jan				Mar			

USMC F/A-18 C-D AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: LCDR Brian Baller PH: 301-757-7333 e-mail: brian.baller@navy.mil

T/M/S	Type Sim	COG Name	Db	Network Module	Last Tech Ref	IA Cert	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
							1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
IWAKUNI																
F/A-18D	TOFT #37	2F193B		NASMP v1.3												
F/A-18D	APT	2F192-1														
F/A-18C	TOFT #16	2F193A						Sep								
MIRAMAR																
F/A-18D	TOFT #30	2F193B		NASMP v1.3												
F/A-18D	TOFT #31	2F193B		NASMP v1.3												
F/A-18C	TOFT #32	2F193A		NASMP v1.3												
F/A-18C	TOFT #33	2F193A		NASMP v1.3												
F/A-18C	TOFT #38	2F193A		NASMP v1.3												
F/A-18C	TOFT #35	2F193A		NASMP v1.3				Apr								
BEAUFORT																
F/A-18C	TOFT #28	2F193A		NASMP v1.3												
F/A-18D	TOFT #34	2F193B		NASMP v1.3												
F/A-18D	TOFT #36			NASMP v1.3												
F/A-18C	TOFT #40	2F193A		NASMP v1.3												
FT WORTH																
F/A-18C	TOFT #43	2F193A		NASMP v1.3												

- Distributed Mission Training capability for Miramar is a current reality. MATSS Beaufort will be capable in FY11.
- DMTs are planned (TBD) to link to other USMC simulators via the USMC ADVTE and/or Joint Tactical Experimentation Network (JTEN).

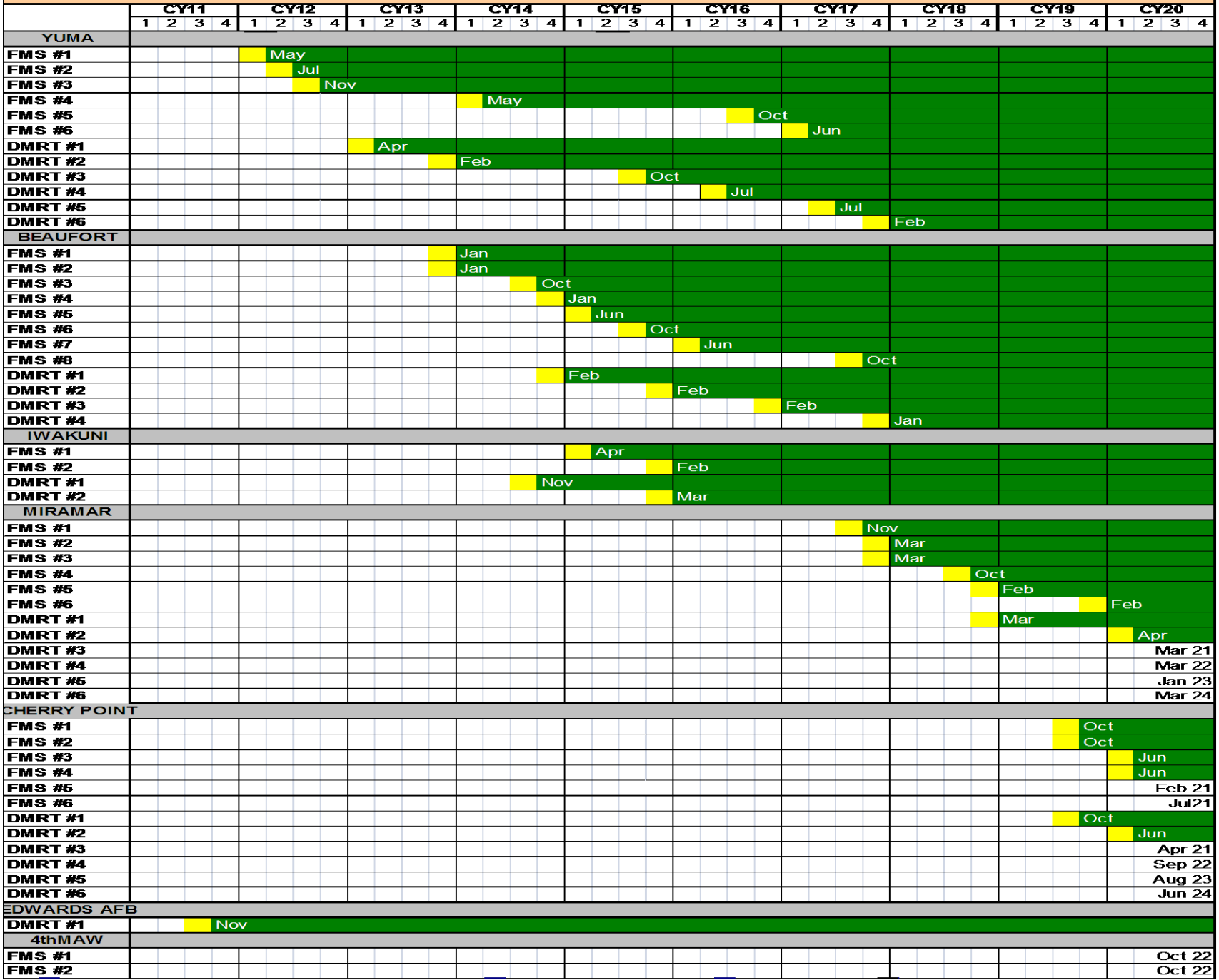
USMC EA-6B AIRCREW TRAINING SYSTEMS ROADMAP

APMTS: John Potts PH: 301-757-XXXX e-mail: john.potts@navy.mil

T/M/S	Type Sim	COG Name	Db	Ten	Last Tech Ref	IA Cert	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
							1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
WHIDBEY ISALND																
EA-6B	WST	2F187		N/A								YEER TO CHP?				
CHERRY POINT																
EA-6B	OF/NT	2F185						Sep	Oct				Oct			
EA-6B	TTT	15E43							Oct					Oct		
EA-6B	WST	2F187														
EA-6B	OF/NT	2F143		v4.0	FY08					DISPOSAL TBD						
EA-6B	TTT	15E22C		N/A						DISPOSAL TBD						
EA-6B	WST	2F188		N/A	FY08											
IWAKUNI																
EA-6B	WST	2F178		N/A	FY10					DISPOSAL TBD						

F-35B AIRCREW TRAINING SYSTEMS ROADMAP

Trng IPTL: Rob Finley PH: 703-601-5545 e-mail: robert.finley@jsf.mil



Section 14 --- Marine Aviation Logistics Plan

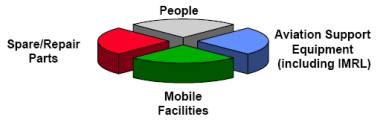
Aviation Logistics: Marine Aviation Logistics Support Program (MALSP)

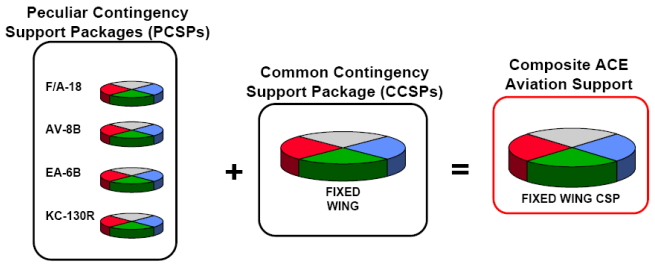
MALSP: MALSP has a history of excellence in supporting Marine aviation. It was the foundation of support for the Marine ACE during Operations DESERT SHIELD and DESERT STORM, and it has continued to support the ACE in Iraq and Afghanistan.

CSPs identify aviation logistics support for Marine contingency requirements. CSPs provide the necessary people, support equipment (SE), mobile facilities (MFs) and spare/repair parts for each MAG/MALS. The spare/repair parts are computed at the combat utilization rate for a 90 day duration. CSPs ensure that adequate common and peculiar support is available for separate/sustained operational commitments when attached to a "host" MALS.

The Remote Expeditionary Support Package (RESP) is the most tailorable element of MALSP, consisting of the FISP, people, MF, and SE for a thirty-day duration. In order to capture the composition of a RESP, a workbook has been designed for each T/M/S aircraft. Each workbook will capture data that will enable planners to access quickly the 80% solution for current and future deployments alike. Each current readiness T/M/S team lead will be responsible for the input and upkeep of the respective RESP workbooks.

It is critically important during our transformation to MALSP II that CSPs and the RESP concept leverage all AIRSpeed lessons learned to increase aviation readiness and the flexibility and effectiveness of aviation logistics support.





Contingency Support Package (CSP) Descriptions:

Fly-In Support Package (FISP) – The FISP provides organizational-level remove-and-replace spare parts to support the initial 30 days' sorties at combat flying hour utilization rates. The FISP is deployed with the fly-in echelon (FIE) and/or flight ferry (FF) of the deploying ACE and is critical to enabling initial combat operations.

Common CSP (CCSP) – The follow-on to the FISP and/or RESP, the CCSP is the baseline core capability of the intermediate-level support of the deploying Marine Aviation Logistics Squadron (MALS). The CCSP is subdivided into fixed- and rotary-wing CCSPs.

Peculiar CSP (PCSP) – Also a follow-on to the FISP, the PCSP is unique to the type/model/series aircraft (number and type) and combines with the CCSP to form the MALS intermediate-level capability. CCSPs and PCSPs combine to provide 90 days of combat flying hours depth of sustainment.

Follow-On Support Package (FOSP) – The FOSP is a deployable intermediate-level capability that due to its size and footprint may be phased to a theater of operation, depending on mission requirements and mission duration.

Training Support Allowance (TSA) – The TSA is a thirty-day support package specifically tailored to support a Fleet Replacement Squadron. As such, the TSA does not deploy.

Remote Expeditionary Support Package (RESP) – The RESP combines with FISP spares and provides personnel, SE, and additional MFs tailored to sustain the ACE during the first thirty days of operations until the CSPs arrive in theater.

MEU Expeditionary Support Package (MESP) – The MESP are O-Level only spare parts packages built to a standard MEU deckload at a 30-day combat utilization rate. MESPs are owned, accounted for, stored, and managed at MALS designated by HQMC ASL. Deployment of a MESP requires the MEU Commander to request sourcing from the applicable Marine Forces (MARFOR). MARFORs, with concurrence of the Theater Commander, will direct MESP reconstitution and redeployment upon completion of the operation.

Aviation Logistics Transformation: MALSP II

Marine aviation is transforming to meet the new, uncertain, operational theater and move towards current readiness. Marine aviation logistics (AVLOG) is aware of this changing environment, and is aligning its concept of operations carefully to ensure it is ready to meet and surpass current and future challenges.

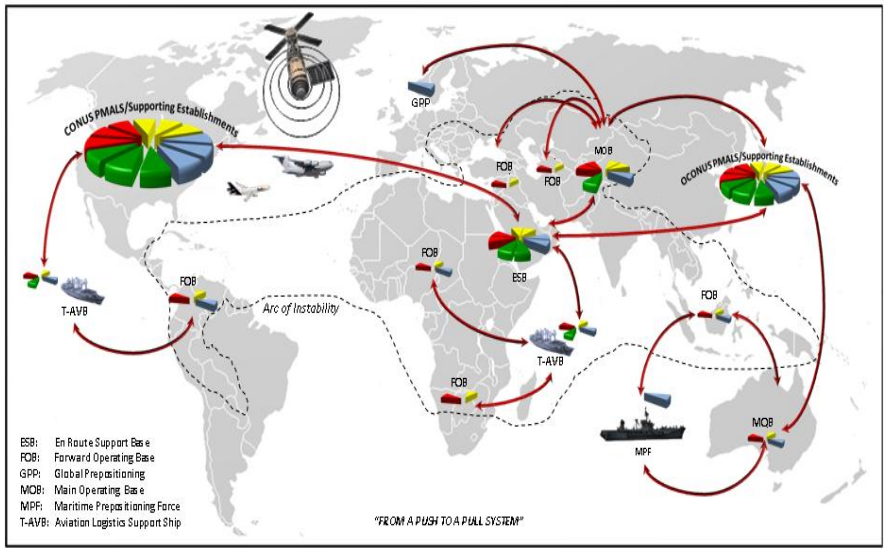
AVLOG provides organizational and intermediate levels of aviation maintenance, supply, ordnance, and avionics in support of the ACE as a key component of the Marine Air Ground Task Force. AVLOG's strategy to continue to satisfy this requirement, as it evolves to meet the new challenges, is based on a new way of doing business – End-to-End (E2E) AIRSpeed.

Marine aviation is facing new challenges. It has to maintain its capability to address major combat operations, but it must also evolve to deal with adversaries driven to use irregular, catastrophic, and disruptive methods to further their aim.

MALSP II is AVLOG's deployed logistics sustainment solution to meet these demanding and changing requirements. It supports the long war concept, Marine Corps *Vision and Strategy 2025*, and the Maritime Strategy. MALSP II will transform deployed aviation logistics, providing a responsive, agile and sustainable solution with a properly sized, forward operational footprint. This will ultimately ensure that the ACE is supported, whatever the role, whatever the threat, wherever the location.

MALSP II is based on End to End (E2E) AIRSpeed , aviation logistics fundamental methodology for conducting business. It uses Theory of Constraints (TOC) demand-pull and buffer management principles vice the scheduled push system of its predecessor. TOC is used to develop a blueprint of the process which can be easily replicated throughout the enterprise. It is this design, underpinned by LSS and CPI strategies which creates the responsive, agile and sustainable solution needed to satisfy the new and ever evolving challenge.

MALSP II



The nodes in the MALSP II logistics chain will include the Parent Marine Aviation Logistics Squadron (PMALS); en route support base (ESB); main operating base (MOB); and forward operating base (FOB). MALSP II's maintenance concept is to conduct all non-essential intermediate level maintenance at the PMALS and only deploy limited maintenance capability at forward nodes to mitigate situations which cannot be met by material buffers. During high intensity conflicts, the MALSP II logistics chain can be augmented with maintenance capability and material buffers from two Aviation Logistics Support (T-AVB) Ships, Maritime Prepositioning Force (MPF) ships, Marine Corps Prepositioning Program - Norway (MCPP-N) assets, and future Geographic Prepositioning Program (GPP) capability for aviation support equipment.

In 2010, an Enroute Support Base (ESB) was established in Bahrain as a proof of concept for supply support in the MALSP II effort. The ESB proof of concept was designed to measure performance metrics such as Time to Reliably Replenish (TRR) and provide support to the detachment located in the Horn of Africa. Success of the ESB will drive future maturation of MALSP II.

Aviation Logistics Transformation: End-to-End (E2E) AIRSpeed

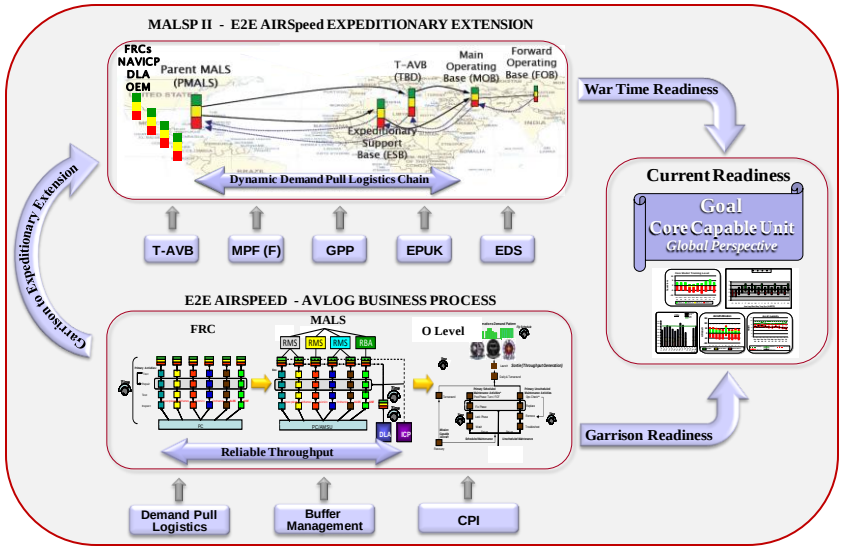
E2E Alignment is AVLOG's fundamental new business process. It is based on CPI concepts that combine proven Theory of Constraints (TOC) and Lean/Six Sigma (LSS) methodologies into a fully integrated and cohesive solution set. It is the key process enabler for MALSP II and current readiness. It is aligned to the long war concept, Marine Corps *Vision and Strategy 2025*, and the Maritime Strategy. It also supports Naval Aviation Enterprise (NAE), Marine Aviation Executive Readiness Board (MAERB) and type/model/series team goals.

E2E is an integrated application of Theory of Constraints (TOC) and Lean Six Sigma (LSS) to improve the effectiveness and efficiency of the Marine Aviation Logistics Squadrons (MALS). It has been very successful in achieving this goal, and its designed end state is providing highly reliable and effective logistics throughput to the operational squadrons.

Implementation of this new business process at the MALS & AIMDs was only the first step. E2E AIRSpeed is now evolving to take a holistic view of the entire Marine aviation logistics supply chain, whether garrison – flight line to depot artisan to NAE logistics providers – or deployed – forward operating base to en route support base (ESB) to parent Marine Aviation Logistics Squadron (PMALS). It will align and synchronize all supporting activities towards the common goal and provide Marine aviation with truly exceptional support.

E2E AIRSpeed is implemented to a carefully developed 'blueprint' based on the TOC, demand-pull logistics and buffer management principles. It is underpinned by focused and aggressive continuous process improvement (CPI) applied through the entire Marine Corps, which seeks to identify and eliminate waste, variation and redundancy throughout the logistics chain.

E2E - Synchronizing the Logistics Chain



E2E Airspeed is being deployed aggressively throughout the aviation enterprise. To date, one T/M/S has been completed and the second is at the planning phase. The goal is to complete all T/M/Ss by FY2012.

It will cut across and be disseminated throughout the entire AVLOG community, becoming fully ingrained in our organization so that it becomes *"the way we do business."* E2E in its mature and fully deployed end state will achieve the MALSP II doctrine and current readiness goals and ultimately provide Marine aviation with the truly exceptional logistics system it demands.

Aviation Logistics Transformation: Enablers

Aviation Logistics Support Ship – T-AVB

USMC aviation currently employs two dedicated Aviation Logistics Support Ships (T-AVBs). The ships provide dedicated sealift capability for the rapid movement of the USMC aviation intermediate level (I-level) maintenance facilities to sustain fixed and rotary-wing aircraft. The hull life for these two ships expires in 2019 and 2020 respectively, resulting in potential critical capability loss for Marine aviation. The future T-AVB represents AVLOG's initiative to plan for and ensure this critical capability is maintained. AVLOG's future T-AVB activities are focused on validating future requirements ensuring continuation of funding support.

Maritime Prepositioning Force – MPF (T)

The MPF is currently a deployment option optimized for Major Combat Operations (MCO). Ship loads, concepts of employment, and the notional Marine Expeditionary Brigade (MEB) structure are all oriented toward the MCO. A comprehensive approach of modernizing the MPF is required to ensure this strategic capability will better support current and future requirements of the Geographic Combatant Commander's (GCC). MPF Transition, MPF (T) will incorporate the use of three Break Bulk Supply and Ammunition (T-AKE) ships as well as the introduction of the Mobile Loading Platform (MLP).

Geographic Prepositioning Program – GPP

Forward geographic prepositioning of equipment is an HQMC initiative which is fully complementary to MALSP II and its family of systems. GPP uses forward operating sites, and a diverse array of more austere cooperative security locations to preposition equipment and supplies in critical regions and along key transportation routes. This concept is an important aspect of the MALSP II doctrine as it will ensure that equipment and supplies are available to support and sustain rapid deployment of the ACE. AVLOG will fully embrace and support the GPP initiative and leverage its capability to enable the success of E2E AIRSpeed and MALSP II.

Expeditionary Delivery System – EDS

The MALSP II doctrine demands a highly flexible and responsive delivery system for aviation maintenance repair facilities, parts, supplies and support equipment. The Expeditionary Delivery System (EDS) will satisfy this requirement with a delivery solution which is comprised of a stronger, light weight and modular family of containers and support packages. Key components of the system include standardization, scalability, right sized modules and International Organization for Standardization (ISO) compatibility, features which will facilitate organic lift and handling capabilities and ultimately satisfy the fundamental requirements for flexibility, agility and rapid response. AVLOG will participate in the evolution of EDS and leverage its concept to ensure its capability is an integral part of the overall MALSP II solution.

Aviation Logistics Transformation: Information Technology (IT) Strategy

AVLOG Information Technology (IT) Strategy

IT is the critical enabler that will transform AVLOG capabilities and speed in decision making. AVLOG IT is developing, updating, and implementing doctrine to support AVLOG transformation, as well as training and positioning personnel to meet future IT challenges. AVLOG IT is also working with resource sponsors on the sustainment strategy to maintain our current systems, consolidate them, and move AVLOG IT toward the next generation.

Expeditionary Pack-Up Kit (EPUK)

EPUK is designed to provide flexible aircraft support with minimal footprint, infrastructure, and manpower. EPUK is scalable to the amount of support required and designed for rapid deployment and redeployment EPUK's basic principles include:

- Functions (Issue→ Receive→ Stow→ Retrograde)
- Reduces manpower, training, human touch (via automation), and complexity
- Visibility of all on-site inventory and transactions
- Inventory and transaction data flow back to supporting sites through reliable system interfaces with legacy and future systems
- Interface with organizational & intermediate level NALCOMIS / R-Supply
- All management / decision making happens at the supporting MALS (moves workload ashore), which has visibility of all supported EPUKs
- Inventory management and control (MALSP-II Buffer Management)

EPUK is a key capability to ensure MALSP II achieves its goal of providing a responsive, agile and sustainable logistics solution. EPUK release 1 is scheduled to deliver in FY 2010 with an operational assessment in early FY 2011.

Navy Tactical Command Support Systems (NTCSS)

Introduced in Apr 1995, NTCSS is a multi-application program providing standardized tactical support information systems capability to afloat, deploying and shore-based Navy and Marine Corps activities. NTCSS incorporates Aviation, Surface and Subsurface Maintenance, Supply, Inventory, Finance, and Administrations. NTCSS is the primary automated logistics system supporting Marine Aviation. The USMC version of NTCSS is fully deployable and capable of supporting the Aviation Combat Element's Intermediate Logistics needs in any theater of operation. It also provides Organizational level squadrons with automated maintenance management capability ashore, afloat, or forward deployed. NTCSS complies with the Marine Aviation Logistics Support Program (MALSP and MALSP II) and includes the following functionality:

Relational Supply (RSupply)

Is the system for supply control, requirements processing, parts ordering and tracking, inventory management, and financial management.

Optimized Intermediate Maintenance Activity (OIMA) Naval Aviation Logistics Command/Management Information System (NALCOMIS)

Is the day-to-day maintenance management tool for Intermediate level production control, Quality Assurance, Supply, History Retrieval, Asset Management Operational Readiness Reports, and includes individual repairable components requisition and documentation.

Optimized Organizational Maintenance Activity (OOMA) Naval Aviation Logistics Command/Management Information System (NALCOMIS)

Is the day-to-day maintenance management tool for aviation squadrons and other organizational level maintenance activities that provides Flight Data Recording, Asset Management, Maintenance Control, Quality Assurance, Logs and Records – Technical Publications that encompasses end items such as aircraft, repairables and equipment component repair. The current release of version 5.11 interfaces with F-AME (F-18 Automated Maintenance Environment) the F-18 smart aircraft application, to provide enhanced tracking of critical maintenance data.

NTCSS Way Forward

The current release of NTCSS (Viking) is migrating the Intermediate Maintenance Activity (IMA) applications to a Common Operating Environment (LINUX) as well as providing a complete hardware refresh. Thirteen MALS and COOPs will be completed by the end of FY 2010. This includes OEF Units and USMC training sites. The remaining six sites will be completed FY 2011. The Viking Upgrade provides a new ISO Certified Mobile Facility to all deployable USMC Aviation Units.

Aircraft Material Condition & RESET Program

Aircraft Material Condition

The responsibility to maintain, preserve, and enhance the capability of aircraft rests with O-level squadrons and I-level activities that provide essential aviation logistics support. Professionally maintained and 'healthy' aircraft will promote safe operations and ensure maximum aircraft reliability, performance, and combat capability. To that end, aircraft material condition goals and a standardized policy of limiting outstanding maintenance discrepancies for each T/M/S aircraft are directed.

Aircraft Material Condition Goals

• Maintains all squadrons at 100% PMAI.
• Achieve category 'B' readiness goals for MC/FMC rates as specified in OPNAVINST 5442.4 (series).
• Adhere to depot level induction requirements.
• Increase priority of corrosion prevention and treatment.
• Ensure "A" status aircraft do not remain in non-flying status for more than sixty days (aircraft should be flown before sixty days elapse.)
• Require annual training for aircrew and maintenance personnel in corrosion identification and prevention.

Goals for Maximum Number of Awaiting Maintenance Discrepancies

• F/A – 18 A/C/D, AV-8B, UH/AH-1……10
• CH-46E ……...15
• MV-22, KC-130J ……20
• KC-130F/R/T, CH-53-D/E……...25

RESET Program Vision

Enhance the material condition of USMC aircraft and reduce the maintenance burden on our Marines using a holistic approach:
• Develop the process for requirements determination.
• Include specification development, budgeting, contracting, scheduling, and execution.
• Develop performance metrics, policy and plans.

Current Situation

Source selection during Dec 08/ Jan 09 resulted in selection of two primary contractors, Defense Support Systems (DS2) and PKL Services (PKL):

Lot 1: F/A-18, EA-6B, AV-8B performed by DS2
Lot 2: KC-13J performed by DS2
Lot 3: AH-1W, UH-1N, CH-53D/E performed by PKL
Lot 4: CH-46E performed by PKL
Five year contract (Base contract plus nine six month options).

RESET Program Elements

PRESET: Will be performed on all aircraft (including operational spare aircraft) identified for deployment in support of OCO. PRESET will commence no earlier than 180 days prior to deployment and complete no later than 30 days prior to deployment. *(Event duration 14 days)*
IN THEATER SUSTAINMENT: Will be performed on all aircraft that are assigned OCONUS on extended rotation (more than 1 year) to ensure aircraft are maintained to "preset Condition" before their subsequent return to CONUS. *(Event duration 30 days)*
RECONSTITUTION: Will be performed on all aircraft returning from OCO have at least 60 days of consecutive land-based operations in those operational areas. The Reconstitution will commence no earlier than the first day upon return from deployment, and will be completed no later than 180 days from the date the aircraft returned to CONUS. *(Event duration 21 days)*
INDUSTRIAL / INTEGRATED LOGISTICS SUPPORT: Reestablish aircraft readiness baseline due to increased OIF utilization rates. Refurbish support equipment (SE) degraded in harsh OIF environment. Reduce depot work in process. Standardize work load packages

Section 15 --- Marine Aviation Ground Support Plan

Marine Aviation Ground Support Plan

MARINE WING SUPPORT SQUADRONS (MWSS):

Mission:

Provide essential aviation ground support (AGS) to all components of the aviation combat element.

AGS:

Consists of ground support functions required (less aircraft supply, maintenance, and ordnance) for sustained air operations at air bases and forward operating bases. It is the critical component that gives Marine aviation its expeditionary capability. AGS is comprised of thirteen functions:

- Internal airfield communications
- Expeditionary airfield services (EAF)
- Airfield Rescue and FireFighting (ARFF)
- Aircraft and ground refueling
- Explosive ordnance disposal (EOD)
- Essential engineer services
- Motor transport (MT)
- Field messing facilities
- Routine and emergency sick call and medical functions
- Individual and unit training
- Chemical, biological, radiological, and nuclear (CBRN) defense
- Security services
- Air base commander functions

Currently there are three active Marine Wing Support Groups (MWSGs) and one reserve MWSG. The MWSGs within 2nd and 3rd MAW have four deployable Marine Wing Support Squadrons (MWSS); the MWSG within 1st MAW has two MWSSs.

Our reserve component has three MWSSs.

Capability Enhancements:

• Operational, training, and equipment enhancements continue to keep AGS on par with evolving Marine Corps future operational and logistics concepts. Enhancements in these areas include:

• Resetting and reconstituting forces and equipment from OIF, and positioning the AGS community to better support OEF, other operational requirements and contingencies, and home station training.

• Participating as the AGS element in Enhanced Mojave Viper and Mojave Viper exercises for improved pre-deployment preparation and truly integrated MAGTF training.

• Fielding the Route Reconnaissance and Clearance (R2C) equipment set to each MWSS, enhancing the ability of the MWSS to open and support FOBs, as well as bolster security capabilities. Using mobility to reduce vulnerability will be central to MWSS force protection.

• Expansion of AGS capability, to include the establishment of an MWSS detachment to support MAG-24 and Marine aviation units operating in Hawaii and Guam. Expanded operations and training will eventually require the expansion of the MWSS detachment to a full squadron.

• Maritime Prepositioning Force capability sets to enable the ACE commander to call upon measured AGS capabilities to support aviation operations ashore or from a seabase.

• Lightweight airfield surfacing eases the logistical burden of the current AM-2 matting. New matting or airfield surface technology keeping pace with the fielding of new ACE aviation T/M/S platforms facilitating training and operational requirements these assets will demand.

• Advanced airfield lighting is smaller, less maintenance- intensive and a self-contained system. We will leverage solar capabilities for improved efficiency and reliability.

Marine Aviation Ground Support Plan (cont.)

Capability Enhancements…we will:

• Transition the METOC function seamlessly from the MWSG to the MACG while supporting the fielding of the METMF(R) Next Generation, AWOS and NITES- Next; modular, highly mobile weather sensing and forecasting systems to support all elements of the MAGTF.

• Prevent brown-out conditions and decrease FOD hazards in austere landing zones or air sites through proactive dust abatement measures. Assist expeditionary airfield (EAF) and engineer Marines to provide soil stabilization, sub base and base layer construction and surface seal for construction of airfields and helicopter landing zones. Increase current equipment allowances and influence technology in both equipment and palliatives for current operations in OEF and future near term contingencies.

• Refine airfield damage repair (ADR) techniques for expeditious restoration of landing surfaces for tactical aircraft at FOBs. Integrate new material advances in runway repair and incorporate those solutions into the ADR Kit and repair procedures.

• Fund and field a new aircraft and structure fire fighting truck (P-19 replacement) providing state-of-the-art rescue and aircraft fire fighting capabilities to permanent and expeditionary airfields throughout the Marine Corps.

• Field the Expeditionary Field Kitchen and the Enhanced Tray Ration Heating System, increasing the capability to prepare a wider variety of rations and provide the means to prepare, deliver and serve hot meals in a forward area

• Advocate and support DOTMLPF solutions to lighten the load on warfighters; reduce overall footprint; lessen energy consumption and dependence on fossil fuels; and achieve greater energy efficiency in combat zones and expeditionary environments. This includes:

- Efficient electrical generation at FOBs and FARPs;
- Lighter, more efficient rechargeable batteries and battery chargers;
- Individual power generation;
- Improved tentage/billeting (energy efficient structures);
- Flexible expeditionary electrical distribution grids and power/load management systems;
- Use of water purification units to include light weight, low power, scalable water purification and effective distribution;
- Use of solar, wind, and fuel alternatives; and
- Effective waste management practices..

• Receive and employ RQ-11B Raven UAS incorporating the capability into unit TTPs, SOPs and AGS doctrine. Leverage Unmanned Aircraft Systems (UAS) to improve accuracy and timeliness of Base Recovery After Attack (BRATT) and initial airfield assessments.

• Support the family of MHE program maintaining material handling and transportation support capability within the MWSS. Develop and field a ground cargo handling "system" that speeds up intermodal transfer of parts and supplies, instead of relying on legacy equipment and valuable Marine manpower to do the job (i.e. EBFL Sky Trac). Ideally, a CH-53K will have an internally-transportable, tactically designed, all-terrain lifting/moving capability.

Marine Aviation Ground Support Plan (cont.)

Capability Enhancements…we will:

• Remain engaged in ground mobility initiatives that improve our motor transportation speed, agility and mobility of AGS in a complex, ambiguous battlefield, against irregular forces and in a wide variety of operational environments. This includes platforms like the Joint Light Tactical Vehicle, Internally Transportable Vehicle, Medium Tactical Vehicle Replacement, Mine Resistant Ambush Protected Vehicle and Logistics Vehicle System.

• Update current runway sweeping equipment and field an Automatic FOD Detection (AFODD) system which is designed to locate potentially hazardous debris on airfield runways by providing constant monitoring .

• Provide fuel for highly mobile and flexible helicopter and fixed-wing operations in a dispersed posture. Includes bulk liquid transportation, storage and distribution capabilities and a force structure to support ACE operations. A self mobile fuel storage dispensing capability under static, hot or cold refueling methods and Pantograph Systems for Hot Pit Refueling/Defueling of Fixed and Rotary Wing Military Aircraft.

Marine Aviation Ground Support Plan (cont.)

The Future of Aviation Ground Support

Marine Aviation Ground Support Plan

As the MAGTF projects power ashore during expeditionary operations, those units ashore will be operational for short periods of time requiring responsive logistical and aviation ground support (AGS). Reducing the time it takes to set up and provide AGS and logistics support ashore and capability to move on short notice will be key characteristics of future MWSSs.

ACE Maneuver

The ACE must have AGS capability to deploy rapidly and support the aviation requirements of the MAGTF and JTF commander. AGS capability must be measured; that is, precise amounts of fuel, ammunition, logistics, and ACE-specific services must be at a time and place of the ACE commander's choosing. The MWSS will maintain its core capability to operate one FOB and two FARPs simultaneously. Embedded within the MWSS will be task-organized and -equipped capability sets (internal to the squadrons and loaded aboard MPF ships) that can be employed quickly for ACE mission tasking.

ACE Command and Control

Key to the effective sustainment of the ACE and MAGTF fight will be greater integration into the ACE command information architecture. The MWSS Aviation Ground Support Operations Center (AGSOC) will be connected to the ACE command information network and site command network to monitor ACE support requirements, to provide increased situational awareness to the higher and adjacent commands, and to act rapidly to support ACE operations when and where needed.

Additionally the airfield operations section (fuels, AARF, EAF, METOC) provides unique expeditionary flexibility for aviation assets and their supported commands in austere environments.

Force Protection

By employing lighter, more-capable and more-mobile equipment, the MWSS will provide measured AGS. Through capability enhancements the MWSS will reduce its footprint ashore and have the ability to set up rapidly, provide necessary AGS for short duration operations, displace, and relocate within minutes. Using mobility to reduce vulnerability will be central to MWSS force protection. In addition, the MAW Military Police company gives the ACE self defense should the MWSS be engaged at FOB and FARP sites.

Logistics Integration

The integration of all logistical assets ashore will be a critical enabler. Interoperability between the logistics combat element (LCE) and MWSS must be seamless. The MAGTF Logistics Integration (MLI) initiative between aviation and I&L will ensure that AGS is inclusive in logistics modernization (LOGMOD) initiatives and that ground and aviation logistics continue to seek integrated processes, systems, command and control, and mission planning.

Implementation of the three-level maintenance process will enable operators to conduct minor repairs to equipment, further reducing the maintenance footprint within the highly mobile MWSS unit.

Interoperable AGS

Current and future theater operations necessitate the integration of all service engineers and aviation support capabilities for full-spectrum joint engineer and ground support functions. From combat to general engineering to aviation support-specific functions, our services are sharing the battlefield and expanding their capabilities to address a broad range of planning and execution efforts. We will be required to use other service engineering capabilities and assets to accomplish combined and joint operations. Specifically, the MWSS is neither manned or equipped to conduct large-scale expeditionary airfield construction alone and requires augmentation by other services' engineers.

Expeditionary Airfield 2000 (EAF 2000)

EAF 2000 Capabilities

- 3,850 ft runway & parallel taxiway
- Three sets of arresting gear
- Visual Landing Aid and Lighting Systems
- Hot refueling pits
- 78 parking spaces
  - 75 tactical aircraft (fixed and rotary wing)
  - Three transport aircraft (KC-130)
- Supports Joint operations
  - All naval TACAIR jets, transports, and assault support aircraft
  - C-17 capable

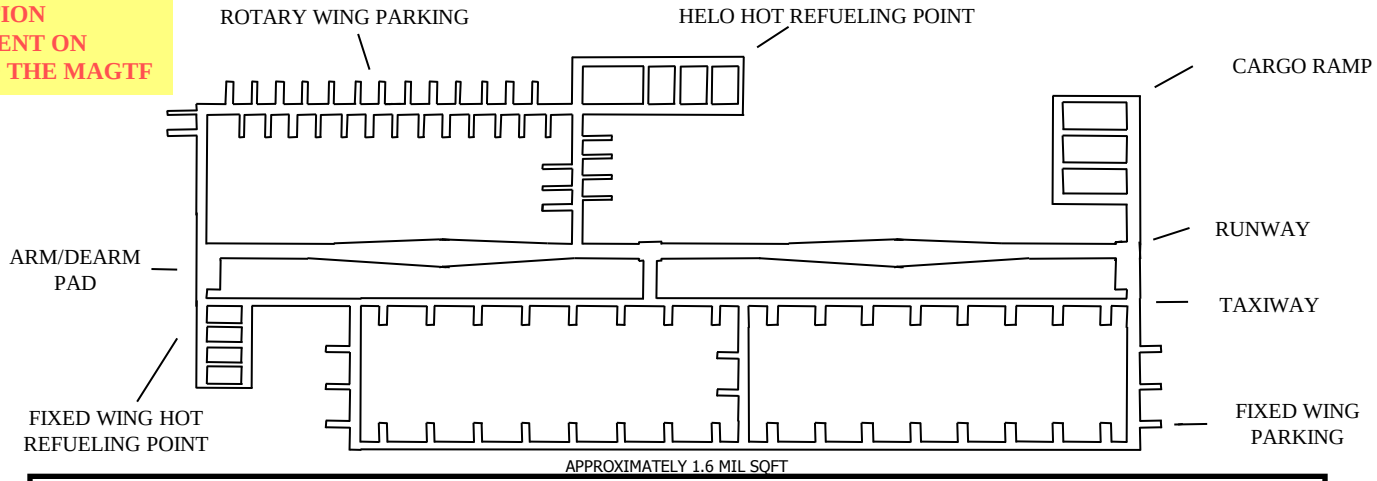
Six Total EAF 2000s

- Three on MPF, 3 stored

EAF Training Sites

- 1st MAW - Ie Shima & VTOL Pads
- 2nd MAW - MCALF Bogue & VTOL Pads
- 3rd MAW - 29 Palms, Red Beach, Aux II and others

SAMPLE CONFIGURATION
DESIGN WILL BE DEPENDENT ON
MISSION AND ACE SUPPORT TO THE MAGTF



Future Efforts

Improved EAF Lighting

High heat-resistant mat for supporting JSF

Section 16 --- Marine Corps Air Station Facilities Upgrade / MILCON Plan

Military construction (MILCON) projects help realize the Commandant's vision for Marine aviation. Required MilCon projects allow basing and realization of IOC dates for new weapon systems such as the MV-22 and JSF.

MILCON designs will focus on flexibility of use to allow new weapon systems, squadron relocations, and re-designations to serve MAGTF requirements as they evolve over time. Our new weapon systems have much greater range and capabilities than legacy platforms, and as a result our range use may differ.

Our air stations and air facilities must remain viable. Where possible, we will use our existing physical assets as a bridge to the full funding of our MILCON programs. The introduction of JSF and ongoing transition to the MV-22 during the FY11-16 timeframe will require additional MILCON resources to ensure we mitigate programmatic and operational risk to both Marine aviation and the Marine Corps as a whole. We can accept some risk in order to drive forward with our modernization of the force, but the resources must eventually be found to make our air stations whole. As part of the transition planning process, we know that we must work around obstacles by using temporary facilities, expeditionary assets, and increased manpower to accomplish the mission.

We must also remain vigilant and we must guard against encroachment to our air stations and associated air space.

The MilCon and Japanese Facilities Improvement Program (JFIP) projects listed in the following tables represent projects required for AvPlan realization, air safety or required to address some operational deficiencies. The Facilities Sustainment Restoration & Modernization (FSRM) projects listed for MCAS Futenma are required to enable the air station to remain 100% operational until eventual closure and transition to the new Futenma Replacement Facility (FRF), to be funded and constructed by the Government of Japan. All projects are a snapshot in time and are subject to change.

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
QUANITICO AIR FAC	P-406	OPERATIONAL FLIGHT SIMULATOR
	P-611	BEQ (AIRFIELD SAFETY ISSUE)
	P-612	ENLISTED DINING FAC (AIRFIELD SAFETY)
	P-647	ATFP MAIN GATE SECURITY IMPROVE
	P-1406	ATC TX/RX RELOCATION
	P-660	FUEL TANK FARM & HYDRANTS (DEFENSE ENERGY SUPPORT CENTER)(DESC)
MCAS CHERRY POINT	P-146	ORDNANCE MAGAZINE
	P-141	EMS FIRE VEHICLE FACILITY
	P-164	MARINERS BAY LAND ACQ
	P-148	MISSILE MAGAZINE
	P-176	STATION INFRASTRUCTURE UPGRADES
	P-163	MARINE AIR SUPPORT SQD COMPOUND
	P-991	H1 Y/Z GEARBOX (ON DEPOT), BLUE IN SUPPORT OF GREEN (BISOG)
	P-601	ARMORY
	P-169	MALS MAINTENANCE HANGAR
	P-172	EXPAND MACG/MTACS FACILITIES
	P-173	MWCS DETACHMENT FACILITY
	P-147	ELECTRONICS VAN PAD
	P-149	MISSILE MAINTENANCE FACILITY
	P-199	JSF HANGAR
	P-197	JSF HANGAR
	P-129	MACS2 OPS AND MAINT FACILITY
	P-130	MOTOR TRANSPORT AND COMM SHOP
	P-990	JSF LIFT FAN FAC ON DEPOT (BISOG)

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS NEW RIVER	P-619	TACTICAL VAN PAD ADDITION
	P-652	VMMT 204 MAINT HANGAR PH III
	P-688	APRON EXPANSION PH II
	P-311	PARALLEL TAXIWAY
	P-683	MV-22 MAINT HANGAR
	P-687	MV-22 MAINT HANGAR (HMLA)
	P-705	HMT HANGAR & APRON
	P-710	CALA ADDITION
	P-721	MALS ADDITION
	P-690	ARMORY
	P-706	SQUADRON WAREHOUSE
	P-709	ORDNANCE MAGAZINE
	P-669	FUEL HYDRANT/TANK UPGRADE
	P-675	H-1 IMP HANGAR
	P-676	HLR MAINT. TRAINING
	P-729	OPERATIONAL TRAINER FACILITY
	P-730	MV-22 IMP HANGAR
	P-559	RUNWAY EXTENSION
MCAS BEAUFORT	P-441	WIDEBODY FUEL LANE
	P-444	TRAINING AND SIMULATOR FAC (BISOG)
	P-454	AIRCRAFT HANGAR - VMFAT-502 (BISOG)
	P-443	AICUZ LAND ACQUISITION
	P-442	VERTICAL LANDING PADS JSF (BISOG)

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS BEAUFORT 2/2	P-456	SIMULATED LHD DECK (BISOG)
	P-427	GROUND SUPPORT EQUIPMENT SHOP
	P-465	AIRCRAFT HANGAR - VMFA-3
	P-470	AIRCRAFT HANGAR - VMFA-5/VMFA-6
	P-472	JSF AIRFLD SECURITY UPGD (BISOG)
	P-471	MAG HQ
	P-464	AIRCRAFT HANGAR - VMFAT-503 (BISOG)
	P-453	TOWNSEND TARGET LAND ACQ FOR PGM
	P-459	RECYCLING/HAZWASTE FACILITY
	P-457	CRYOGENICS FACILITY
	P-462	F-35B AIR ASSAULT STRIP (BISOG)
	P-446	F-35B AIRFIELD PAVEMENT MODS (BISOG)
	P-445	EXPEDITIONARY AUX AIRFIELD (BISOG)
	P-440	AIR EMBARKATION FACILITY
MCAS PENDLETON 1/2	P-086	EXPAND COMBAT AIRCRAFT LOADING
	P-107	AVIATION TRANSMITTER/RECEIVER SITE
	P-109	CNATT/FRS AVIATION TRAINING AND BEQ
	P-111	MALS 39 MAINT HANGAR EXPANSION
	P-114	MV-22 DOUBLE HANGAR REPLACEMENT
	P-116	MV-22 AVIATION PAVEMENT
	P-117	MV-22 FUEL STORAGE
	P-113	AVIATION SIMULATOR BUILDING
	P-106	TROOP TRAINING ACCESS STRUCTURE

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS PENDLETON 2/2	P-101	MAIN GATE SECURITY IMPROVEMENTS
	P-119	EXPAND HANGAR 23144 FOR HMLA
	P-120	EXPAND HANGAR 2397 FOR HMLA
	P-123	ADMIN GATE SAFETY IMPROVEMENTS
MCAS MIRAMAR	P-178	AIRCRAFT PARKING APRON MOD (MV-22)
	P-152	PARKING APRON TAXIWAY EXPAN (MV-22)
	P-185	HANGAR 4 (MV-22)
	P-192	MAINTENANCE HANGAR 7(MV-22)
	P-181	HANGAR 5 MODIFICATION (MV-22)
	P-179	FLIGHT INSTRUCTION FACILITY
	P-209	RUNWAY 24L PAVEMENT UPGRADE
	P-198	JSF MAINTENANCE HANGAR PHASE 1 (JSF)
	P-199	COMPOSITE REPAIR/MAINT FAC (JSF)
	P-207	AIRCRAFT RINSE FACILITY (JSF)
	P-210	SIMULATOR FACILITY (JSF)
	P-201	JSF MAINTENANCE HANGAR PHASE 2 (JSF)
	P-202	JSF MAINTENANCE HANGAR PHASE 3 (JSF)
	P-225	TAXIWAY HOTEL EXTENSION
	P-223	CONSTRUCT RECEIVER BUILDING
	P-224	CONSTRUCT TRANSMITTER BLDG
	P-221	WASH RACKS (JSF)
	P-222	VERTICAL LANDING PADS (JSF)

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS YUMA 1/2	P-447	AIRCRAFT MAINTENANCE HANGAR
	P-556	AIRFIELD ELEC DIST & CONTROL BLDG
	P-460	AIRCRAFT MAINT HANGAR
	P-533	JSF SIM FACILITY
	P-573	IMA FACILITY (RELOCATION JSF HANGAR)
	P-546	JSF UTILITIES INFRA UPGRADE
	P-578	MALS-13 VAN PAD (RELOCATION) JSF
	P-447A	JSF HANGAR
	P-583	COMM INFRASTRUCTURE UPGRADE JSF
	P-545	JSF HANGAR
	P-535	TRANSIENT HELO/JSF HANGAR
	P-575	ALF FAC PHS I JSF
	P-446	CONSOLIDATED ORD DISPOSAL FAC
	P-539	ENLISTED DINING FACILITY - JSF
	P-364	PHY FITNESS CENTER
	P-378	SECURITY OPS FAC
	P-566	COMBAT AIRCRAFT LOADING AREA - HELO
	P-598	CONSOLIDATED CHILLER FAC
	P-504	CONSOLIDATED STATION ARMORY
	P-493	RUNWAY 3R/21L EXTENSION
	P-531	TACTICAL AIR COMMAND CNTR MAWTS-1
	P-558	MAIN GATE, CADC
	P-596	HANGAR #95 RENOVATIONS JSF

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS YUMA 2/2	P-551	AIRCRAFT MAINTENANCE HANGAR JSF
	P-576	ALF FAC PHS II JSF
	P-538	BEQ JSF
	P-602	MAWTS-1 CALA MAINT COMPLEX
	P-502	MALS-13 PROPERTY CONTROL FAC
	P-570	AIRCRAFT MAINTENANCE FAC JSF
	P-536	MAG/MALS/STA HQ FAC JSF
	P-580	FLIGHTLINE PARKING STRUCTURE JSF
	P-589	VL PAD JSF
	P-577	ALF FAC PHS III JSF
	P-572	COMPOSITE REPAIR/MAINT FAC (JSF)
	P-503	TRANSIENT BEQ
	P-421	STUDENT QUARTERS BUILDING (BOQ)
	P-606	MALS-13, AVN SUPPORT FAC UPGRADES
	P-585	RUNWAY UPGRADES F35B JSF
	P-587	TAXIWAY & APRON UPGRADES
	P-579	AME WAREHOUSE FACILITY
	P-542	MWSS-371 MAIN STA COMPOUND
MCBH / MCAS KBAY 1/2	P-822	MCAS AIR OPS COMPLEX
	P-863	HMLA Hangar/Apron
	P-886	Bachelor Enlisted Quarters (MV-22 / HMLA)
	P-844	MV-22 Infrastructure Improvements, Ph I
	P-892	MV-22 Infrastructure Improvements, Ph II
	P-884	Aviation Trainer Facility

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCBH / MCAS KBAY 2/2	P-882	Hangar 105 Demolition; Taxiway Improve
	P-885	MWSS FAC
	P-887	MV-22 Landing Zone Improvements
	P-836	MAG-24 HQ and Parking Building
	P-864	Aircraft Maintenance Expansion
	P-890	Molokai Aviation Training Support
	P-891	CH-53K INFRASTRUCTURE UPGRADES
GUAM	P-100	NORTH RAMP UTILITIES (I)
	P-101	NORTH RAMP PARKING (I)
	P-100A	NORTH RAMP UTILITIES (II)
	P-101A	NORTH RAMP PARKING (II)
	P-109	AVIATION HANGAR NORTH RAMP
	P-2012	AAFB TRANSIENT HANGAR
	P-2032	ACE HQ AND PARKING
	P-2033	MWSS FAC
	P-775	AVN LANDING PRACTICE
	P-788	TINIAN AVN LANDING PRACTICE
	P-780	AV SIM TRAINING FAC
MCAS IWAKUNI 1/3	MC910-T	MACS-4 VAN PAD
	MC948	AIRFIELD FIRE TRAIN FAC (TOWER) PH I
	MC948	AIRFIELD FIRE TRAINING FACILITIES PH 2
	MC0201-T	MAG-12 DUAL SQUAD HANGAR PH 1
	MC0421-T	MAG-12 DUAL SQUADRON HANGAR PH 2

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS IWAKUNI 2/3	MC157-T	FLIGHTLINE FIRE STATION
	MC150-T	MALS-12 AV MAINT FAC & VAN COMPLEX
	MC156-T	MAG-12 GEN STORAGE WHSE & SHEDS
	MC0404	MALS-12 ARMAMENT & GSE C.H. WHSE
	MC909-T	TACTICAL AIRCRAFT DIRECT FUEL STA
	MC171-T	VMGR-152 SUPPLY / STORAGE COMPLEX
	MC250-T	AIMD AVIATION MAINTENANCE FACILITY
	MC165-T	CVW-5 MAINT HANGAR & PH I PARKING APRON (VFA-27 & VFA-102)
	MC164-T	STATION / VISITING AIRCRAFT APRON & SUPPORT FAC
	MC0423	MAG-12 MAINT HANGAR
	MC0447	EAST UTILITY PLANT
	MC936	STATION AIR CARGO TERMINAL
	MC0135	STATION AIRCRAFT MAINT HANGAR
	MC155-T	MALS-12 HUSH HOUSE & ENGINE TEST
	MC154-T	MAG-12 CORROSION CONTROL HANGAR
	MC158-T	OP TRAINERS COMPLEX & MAG-12/CVW-5 SECURITY SEC
	MC159-T	MAG-12 / CVW-5 HQ BUILDING
	MC170-T	VMGR-152 AIRCRAFT MAINT HANGAR
	MC172-T	VMGR-152 CORR CONTROL HANGAR
	MC173-T	VMGR-152 AIRCRAFT PARKING APRON, WASHRACK, & RINSE FACILITY
	MC166-T	CVW-5 AIRCRAFT HANGAR & PH II APRON (VFA-192 & VFA-195)
	MC167-T	CVW-5 MAINT HANGAR & PH III APRON (VAW-115/VRC-30/VAQ-136)

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
MCAS IWAKUNI 3/3	MC168-T	CVW-5 CC HANGAR & WASH PAD
	MC169-T	CVW-5 HUSH HOUSE & ENGINE TEST CELL
	MC251-T	CVW-5 GENL STOR WHSE & SHEDS
	MC175-T	NAPRA DET MAINT HANGAR & STORAGE
	MC908	COMBAT AIRCRAFT LOADING AREA CALA
	MC152-T	MAG-12 WASH PAD
	MC174-T	VMGR-152 OPERATING TANKS
	MC194-T	JP5 FUEL STORAGE
	P-995	MC-0421 HANGER IMPROVEMENT NORTH
	P-996	VTOL PAD NORTH
	P-1000	MC-0421 HANGER IMPROVEMENT SOUTH
	P-1001	MC-0201 HANGER IMPROVEMENT NORTH
	P-1002	MC-0201 HANGER IMPROVEMENT SOUTH
	P-XXX	VISITING AIRCRAFT PARKING APRON
	P-996	VTOL PAD NORTH & SOUTH
	P-XXX	AVIATION TRAINING SYSTEM COMPLEX
	P-940	JP5 OFF LOAD FACILITY (DESC)
	P-950	CONSTRUCT NEW TANKS - PACOM (DESC)
	P-951	MOD FUEL PIER T5 CLASS TANKER (DESC)
	P-XXX	PARKING APRON IMPROVE (SQD #1)
	P-XXX	VTOL PAD SOUTH
	P-XXX	MBIT PAD IMPROVEMENTS

MILCON PROJECTS REQUIRED FOR AVPLAN / AIR SAFETY / OPS		
LOCATION	**PROJ #**	**TITLE**
CAMP FOSTER	P-302	CONSTRUCT HELIPAD (BUILDING 1)
OKINAWA IE SHIMA	P-801	IE SHIMA UPGRADES
	P-802	VTOL PAD UPGRADE
MARINE WING LIAISON KADENA	P-803	MODIFY MWLK ACFT MAINT HANGAR
	P-804	CONSTRUCT SUNSHADES
	P-805	CONSTRUCT MAINTENANCE BUILDING
	P-806	PARKING APRON IMPROVEMENTS
MCAS FUTENMA	P-203	MATS & ANCILLARY EQUIP STORAGE
	P-204	RUNWAY/TAXIWAY SHOULDERS
	P-205	AIRCRAFT RUNWAY OVERRUN
	P-206	AIRCRAFT APRON JOINT UPGRADE
	P-207	CONSTRUCT AIRCRAFT PARKING APRON

Above MCAS Futenma MILCON projects required if the Futenma Replacement Facility experiences unanticipated delays or is cancelled

FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION (FSRM)-- MCAS FUTENMA PROJECTS TO SUSTAIN UNTIL CLOSURE 2020/25		
	PROJ #	**TITLE**
MCAS FUTENMA -- (FSRM)	**Special Program: M2**	
	FU1007M	Replace Existing Sewer Lines
	FU1108M	Repair FP Def Engine Test Cell (Bldg 738)
	FU1109M	Repair FP Def Hangar (Bldg 507)
	FU1110M	Repair FP Def at Hangar (Bldg 539)
	FU1111M	Repair FP Def at Hangar (Bldg 501)
	FU1116M	Repair FP Def at Tank Farm 1
	FU1117M	Repair FP Def at Engine Test Cell (Bldg 737)
	FU1119M	Repair FP Def at Engine Test Cell (Bldg 740)
	FU1121M	Repair FP Def at Hangar (Bldg 520)
	FU1123M	Repair FP Def at Hangar (Bldg 515)
	FU1127M	Repair FP Def at Hangar (Bldg 533)
	FU1132M	Repair Primary Distribution System
	FU1203M	Repair Drainage System
	FU1204M	Repair Drainage System
	FU1135M	Replace Hangar Doors (Bldg 515)
	FUXXXXM	Repair Apron Joints
	FYXXXXM	Repair Runway/Taxiway Shoulders
	Special Program: R2	
	FU1208R	Construct Conc Pads w/ Elec Power MATSS
	FU1216R	Renovate Aircraft Rinse Facility (Bldg 664)
	FU1217R	Renovate Composite Repair (Bldg 507)
	FU1218R	Renovate Wash Rack (Bldg 527A)
	FU1219R	Construct Helipads
	FU1222R	Approach/Touchdown Lighting
	FU1223R	Renovate Aircraft Direct Fueling Station
	FU0811R	PEB GFM Paint Booth (near Bldg 539)
	FUXXXXR	Hangar Hoist/Power Upgr CH-53K (B 533)

Section 17 --- Platform Quick Reference "Quad" Charts

F-35B Lightning II

Program Description

The Joint Strike Fighter brings strategic agility, operational flexibility and tactical supremacy to the MAGTF and represents the centerpiece of Marine aviation transformation. The F-35B unites 5th generation stealth, precision weapons and multi-spectral sensors with the expeditionary responsiveness of a Short Take-off and Vertical Landing (STOVL) fighter-attack platform.

The F-35B in 2015:

- 94 aircraft delivered into Marine Corps service
- 6 USMC squadrons in place
- 1st UDP deployment complete
- 1st MEU detachment underway

The F-35B in 2017: 5 projected deployments (3 MEU, 2 UDP)

Working Issues

Transition Task Force (TTF) and Cross Functional Teams (CFT)

TTF #8: October 2010 in San Diego, CA ; TTF #9, spring 2011

- CFT 1: Test and Training
- CFT 2: Organization and Manpower
- CFT 3: Facilities and Infrastructure
- CFT 5: Automated Logistics Information System (ALIS) integration

Site Activation Task Force (SATAF) standing organizations

- MCAS Yuma, AZ: SATAF #2, spring 2011
- MCAS Beaufort, SC: SATAF #2, Oct 2010
- MCAS Iwakuni, Japan: SATAF #2, spring 2011

Program Update

- 1st F-35B (BF-1) performed vertical landing, 18 March 2010
- VMFAT-501 stood up under MAG-31 at Eglin AFB, 2 April 2010
- 1st F-35B (BF-4) full mission system aircraft began tests 7 April 2010
- 1st F-35B (BF-2) exceeded Mach 1 during test flight, 10 June 2010
- USMC F-35B basing Record of Decision projected, December 2010
- VMFA-332 Initial Operational Capability, December 2012.
- MCAS Ready for Operations (RFO) dates for all F-35B squadrons are defined in accordance with DC(A) Memo for the Record dtd. 15 May 2010.
- Yuma RFO: 1 May 2012
- Beaufort RFO: 1 Jan 2014
- Iwakuni RFO: 1 Mar 2014

Performance / Systems

- Combat range: 485 nm
- CAS range/loiter: 45-60 min.
- Internal fuel: 14,000 lbs.
- Ordnance load-out: 18,000 lbs. across 11 weapons stations
- Internal carriage: 2 x 1000 lb. class + 2 x AIM-120 AMRAAM
- Empty weight: 32,334 lbs. / Max gross weight: 61,500 lbs.
- Cruise speed w/ attack payload: .94M / Top speed: 1.6M
- Offensive systems: APG-81 radar, Electro Optical Targeting System (EOTS)
- Defensive systems: advanced Electronic Warfare / Electronic Protection (EP/EW), electro-optical Distributed Aperture System (DAS)
- Network systems: LINK-16, VMF, and Multi-function Advanced Data Link (MADL)
- Very low observable, 360 sensors, STOVL

Program Descriptions

MAGTF EW Mission: Support the MAGTF Commander by conducting airborne electronic warfare, day or night, under all weather conditions during expeditionary, joint, or combined operations. Increase combat survivability of ground forces, assault support and strike aircraft & weapons by denying, degrading, disrupting the enemy's ability to target and engage our forces.

EA-6B
- 4 Squadrons of 5 aircraft, ICAP II Block 89A
- Transition to ICAP III began Apr 10
- Program of Record into 2019

Intrepid Tiger II (ALQ-231)
- MEU focus (AV-8B, F/A18, H-series)
- 80 pods for counter-comms and IW RF target sets

CORPORAL JCTD
- Distributed ISR and EW on organic UAS
- 48 Shadow 200 (eventually on Group 4 UAS)

SRP – Multi-function, reprogrammable RF device

EA-6B Prowler and AEA Systems

Working Issues

MAGTF EW
- Writing ICD and CDD

EA-6B
- Complete ICAP III transition as soon as practical
- Periodically revisit requirement for a FRS at MCAS Cherry Point

Intrepid Tiger II
- Complete QRA in Fall 2010
- Flight clearances for AV-8B, F/A-18 C/D, H-series helos
- Begin fielding into OEF

CORPORAL JCTD
- Supplanting EPLRS and CRNS radios with QNT/TTNT
- Complete TD 2/3 in 2010
- Complete MUA in Spring 2011

SRP
- Develop EA functionality in 2010-2011
- Begin production and fielding of EA devices in 2011-2012

Program Updates

EA-6B - Transition to ICAP III began 7 April 2010
- PMAI remains 20
- Transition to be complete by 2012
- Total ICAP III aircraft 32

Intrepid Tiger II
- E3 testing at Pax River July 2010
- On-aircraft testing (AV-8B) Fall 2010

CORPORAL JCTD
- Technical Demonstration (TD) 2/3 – Nov/Dec 2010
- Military Utility Assessment (MUA) – Spring 2011
- NRL has built a pod that will work for the payload on Shadow

SRP
- First SRP has been completed
- and delivered to NRL
- Component cards installed;
- payload in system-level checks
- Outside organizations using
- SDK to develop apps

Performance / Systems

- Combat Radius – 30 min. out; 1 hr. 45 min. TOS; 30 min RTB;
- 20 min. reserve
- Weapons Stations - 5
- Empty Weight – 34,000 pounds
- Max Gross Weight & Use Payload (HOGE) – 61,500 pounds
- Top Speed – Subsonic; no limit clean
- Cruise Speed w/ Attack Payload – 0.86 IMN with Stores
- Offensive Systems – ALQ-99 Tactical Jamming System (TJS) with ICAP II; ALQ-218 Receiver and ALQ-99 pods with ICAP III; USQ-113 Communications Jammer; AGM-88 HARM; LITENING Pod; ALE-43 Bulk Chaff Pod;
- Defensive Systems – ALE-47
- Network Systems - Multi-functional Info Distribution System (MIDS) with Link 16; Multi-mission Advanced Tactical Terminal / Integrated Broadcast System (MATT/IBS)

F/A-18A-D Hornet

Program Description

VMFA Mission: Support the MAGTF Commander by destroying surface targets and enemy aircraft, and escorting friendly aircraft, day or night under all weather conditions during expeditionary, joint, or combined operations.

F/A-18
- Active: 12 Squadrons / 177 Aircraft
- FRS: 1 Squadron / 43 Aircraft
- Reserve: 1 Squadron / 13 Aircraft
- Total: 233 Aircraft

Enduring Missions Both Coasts
- TAI: 4 squadrons
- UDP: 8 squadrons

Contingency Operations
- 2 squadron deployments within CY10

Program Update

•FA-18A+/C/D Inventory Issues
- SLAP Phase II, SLEP Phase A complete
- Phase B in work

•ECP-583 (A++, C+)
- A+: 61 aircraft identified, 56 current total (5 attrition)
- C+: 30 aircraft identified (19 in AMARG storage)
- ECD: FY 12/16
- FMS: Australia, Canadians

•APG-73 RUG II Expand 4/5 (FA-18D)
- All-weather enhanced target resolution capability

•ATARS (FA-18D)
- Digital Solid State Recorder and SHARC GCS completed, required sustainment efforts to reach sundown in work

•LITENING
- Progressing towards procurement goal of 80% PAI
- Station 4 clearance Fall 2010
- Improved PnP II data link
- Gen 4

Working Issues

FA-18 Inventory managed to support JSF transition
- Cadre Active/Reserve Squadrons

Structural Life Management Program Goals (minimum)
- SLEP Phase B underway
- 6,000 hrs → 10,000 hrs
- 2000 Traps → 2700 (1500 B/D)
- 8,300 landings → 14,500 (20,000 B/D)
- .78 FLE → 1.0 FLE (via 421 CBR+)

Mission System Goals to meet AVPLAN Requirements
- G4 LITENING
- Digital CAS Interoperability at JSF IOC
- Expand 4/5 IOC 2011
- ATARS Sustainment
- AIM-9X Block II and AIM-120D by 2012

Performance / Systems

- Combat radius: 500+ nm (900+ km)
- Seating capacity/crew options:
  - Model F/A-18A++/C: one-seat (pilot-only)
  - Model F/A-18D: two-seats (pilot/WSO)
- Dimensions: length 56 ft (17.1 m), wing span 40 ft (12.3 m), height 15.3 ft (4.7 m)
- Propulsion: two F404-GE-402 engines, each with 18,000 pounds of thrust
- Top speed: Mach 1.8
- Aircraft gross weight: 24,000-25,000 lbs
- Armament: Air – Air
  - AIM-9, AIM-120, AIM-7, 20mm Gun
- Armament: Air – Ground
  - 20mm Gun, Rockets, GP bombs, Laser Guided, GPS weapons, Dual Mode
- Sensors:
  - APG-65/73 RADAR, Litening FLIR, Advanced Tactical Air Reconnaissance System (ATARS on F/A-18D only)
- Electronic Warfare:
  - ALE-39,47, ALQ-126B, ALR-67v(2)

AV-8B Harrier II

Program Description

VMA Mission: Support the MAGTF Commander by destroying surface targets and escorting friendly aircraft, day or night under all weather conditions during expeditionary, joint, or combined operations.

AV-8B
- FMF: 7 Squadrons/106 Aircraft
- FRS: 1 Squadron/29 Aircraft
- Test: 6 Aircraft
- FS Custody: 5 Aircraft
- Total: 146 Aircraft

Enduring Missions Both Coasts
- MEU: 12 Aircraft deployed/12 in work ups
- UDP: 8 Aircraft deployed ISO MAG-12 and 31st MEU

Contingency Operations
- 1 year of OEF support complete
- 10 Aircraft to deploy in Spring 2011

Program Update

- Advanced Tactical Data Link (ATDL)
  - CORPORAL JCTD to assess feasibility of TTNT waveform to replace EPLRS
  - Military Utility Assessment Spring 2011
  - Gateway to OEF ISR network
  - Vision is common TACAIR ATDL through LITENING
- Helmet Mounted Cueing System
  - Validated Deliberate UNS
  - POM-13 Issue Sheet
- Airborne VMF Terminal – R&D funded
- Digital Video Recorder – funded drop-in replacement
- Stores
  - APKWS – JCTD underway with AV-8B as threshold
  - Laser JDAM – Full integration with H6.1
  - Intrepid Tiger II – 2011 fielding in OEF

Working Issues

Airframe/Engine Sustainment
- Close Ready Basic Aircraft (RBA) gap
  - Readiness Management Program/IMC turnaround
- Sustain Engine Readiness
  - Material availability/Sustained production
- Common Wing
- Attrition Recovery

Tactical Relevance
- H6.0 OFP Upgrade
  - Digital Improved Triple Ejector Racks
  - ALE-47 Integration
  - APG-65 21X Integration
- H6.1 OFP Upgrade
  - MSC/WMC Processor Upgrade
  - LITENING Gen 4 and P & P II Integration
  - AGM-65E Self-lase/Laser JDAM In Weapon LAR
- Airborne VMF Terminal (Digitally Aided CAS Interoperability)

CORPORAL JCTD
- Data Link demo using EPLRS and QNT/TTNT radios inside LITENING
- Potential gateway to ISR network

Performance / Systems

- Combat Radius – 300NM
  - 500NM w/external tanks
- Weapons Stations – 7
- Empty Weight – 14,912 lbs
- Max Gross Weight – 32,000 lbs
- Top Speed – 585 KCAS/1.0 IMN
- Air – Air Armament
  - AIM-120B, AIM-9M, GAU-12
- Air – Ground Armament
  - 500/1000lb GPS/Laser/GP/Cluster Bombs, MK-77, 2.75/5.0, GAU-12
- Sensors: APG-65 Radar, LITENING AT Pod
- Defensive Systems – ALE-39/ALR-67/ALQ-164 DECM Pod
- Network Systems – Automatic Target Handoff System, LITENING C-band video downlink, EPLRS data link

KC-130J Hercules

Program Description

Mission: Support the MAGTF commander by providing aerial refueling, assault support. The installation of the Bolt-on/Bolt-off Harvest Hawk ISR Weapon Mission Kit enables the KC-130J to conduct intelligence, surveillance, reconnaissance, target acquisition, indirect and direct fires adjustment, battlefield damage assessment and destroying surface targets day or night under all weather conditions during expeditionary, joint, or combined operations.

Program Update

- USMC Program of Record: 79 KC-130J aircraft (PAI)
  - 3 Active Squadrons of 15 KC-130Js (PMAI)
  - 2 Reserve Squadrons of 12 KC-130Js (PMAI)
  - 1 Test Asset (PDAI)
  - 9 Pipeline Assets (BAI)

- 46 KC-130J aircraft delivered or on contract
  - 1 additional KC-130J is funded, awaiting contract action
  - 10 KC-130J aircraft programmed in the PR-11FYDP (FY11-16)
  - 22 aircraft short of POR

Working Issues

Harvest Hawk: POA&M to add persistent ISR with the ability to deliver both precision and high volume suppressive fires to the KC-130J mission set. This will be a complementary capability that takes advantage of the KC-130J's extended endurance and will not detract from its ability to perform its primary mission of aerial refueling.

Enlisted Aircrew Consolidation: POA&M to combine the KC-130J Loadmaster and Crew Chief into a single MOS "Crewmaster".

4th MAW KC-130J Transition: POA&M to transition Reserve Component VMGR squadrons from the KC-130T to the KC-130J aircraft, beginning in FY14.

Harvest Hawk Fire Control Operator: POA&M to source, train and sustain the Harvest Hawk Fire Control Operator (FCO) crew position.

Performance / Systems

- Range (20,000-lb Payload) . . . . . 3,250 nm
- Empty Weight . . . . . 91,000 lb
- Fuel Capacity . . . . . 58,500 lb
- Maximum Normal Takeoff Weight (2.0g). . . . . 164,000 lb
- Maximum Cruise Speed . . . . . 320 kts
- Cruise Ceiling . . . . . 25,000 ft
- Fuel Offload @ 1200nm / 20,000 ft . . . . . 30,000 lb
- Passenger Capacity (Ground Troops) 92
- Paratroop Capacity 64
- Air Ambulance Litter Capacity 74

Defensive Electronic Countermeasures:
- Radar Warning Receiver (RWR) AN/ALR-56M
- Advanced Missile Warning System and Laser Detecting Set .. AN/AAR-47(V)2
- Advanced Countermeasure Dispenser System (CMDS) AN/ALE-47
- Advanced IR Countermeasure System . . . . . AN/ALQ-157 version 2

KC-130J Harvest Hawk

Program Description

Mission: Support the MAGTF commander by conducting intelligence, surveillance, reconnaissance, target acquisition, indirect and direct fires adjustment, battlefield damage assessment and destroying surface targets day or night under all weather conditions during expeditionary, joint, or combined operations.

Description: In response to an Urgent Universal Need, the USMC is integrating a bolt-on/bolt-off ISR/weapon mission kit for use on existing KC-130J aircraft. This mission kit is designed to re-configure any KC-130J aircraft rapidly into a platform capable of performing persistent targeting ISR from a AN/AAQ-30 Targeting Sight System mounted on the aft portion of the left hand external fuel tank. Additionally, the mission kit will enable the aircraft to deliver precision fires using Hellfire, Griffin, and Viper Strike munitions. In the future, a 30mm cannon is planned to deliver high volume suppressive fires. This mission kit is designed as a complementary capability that takes advantage of the aircraft's extended endurance and will not detract from its ability to perform its primary mission of aerial refueling.

Program Update

Status: IOC is anticipated for the fourth quarter of FY10. Each active component Marine Air Wing will receive three Harvest Hawk kits for a total POR of nine systems. Harvest Hawk capability is not currently planned for the reserve component.

Working Issues

Training, Tactics and Procedures (TTPs): POA&M to develop Harvest Hawk TTPs based on system capabilities and limitations defined during DT/OT.

Production TSS: POA&M to integrate Production TSS in place of developmental units with activation of Aim Point Adjust, Track offset, & Track Stabilize features currently resident on TSS.

Future TSS Upgrades: POA&M to integrate a Laser Spot Tracker, Production IR Pointer and IR Energy Filter into Production TSS units.

Harvest Hawk Fire Control Operator: POA&M to source, train and sustain the Harvest Hawk Fire Control Operator (FCO) crew position.

Performance / Systems

- Combat Radius . . . . . 300 nm
- Endurance . . . . . 8+ hrs
- Maximum Speed . . . . . 250 kts
- Operational Ceiling . . . . . .25,000 ft

Systems:
- Sensor . . . . . AN/AAQ-30 Target Sight System (TSS) FLIR/Camera, 3rd Gen Mid Wave FLIR with Color Camera optimizes D/R/I ranges, Laser Range Finder and Designator
- Fire Control . . . . . Lockheed Martin Littoral Combat Ship Fire Control Station (FCS), SOCOM Battle Management System (BMS)

Weapons: (3 Air to Ground Weapons Stations)
- Initial Capability . . . . . (4) AGM-114P Hellfire – 28lb warhead, (10) Griffin SOPGM – 13lb warhead,
- Future Capability . . . . . .(10) GBU-44 Viper Strike SOPGM – 5lb warhead, (10) 81/120mm Airdropped Mortar Rounds (1) 30mm Cannon – 2000 Rounds HEI

- Interoperability: . . . . . .AN/ARC-210 Havequick / SINCGARS Radio, UHF frequency hopping system, SATCOM, Rover IV Down Link

KC-130T Hercules

Program Description

Mission: Support the MAGTF commander by providing aerial refueling, assault support, day or night, under all weather conditions during expeditionary, joint, or combined operations.

Program Update

KC-130J Transition: 4th MAW KC-130Ts will be retired as KC-130Js are delivered in (3) plane detachment increments. The first (3) KC-130Js are planned to deliver during FY14. VMGR-452 (Newburgh, NY) will transition to the KC-130J first, followed by VMGR-234 (Ft Worth, TX).

- Projected IOC (6 KC-130Js):
  - VMGR-452 – FY15
  - VMGR-234 – FY18

- Projected FOC: (12 KC-130Js):
  - VMGR-452 – FY23
  - VMGR-234 – FY24

Working Issues

- Enlisted Aircrew Consolidation: POA&M to combine the KC-130T Loadmaster and Flight Mechanic into a single MOS "Crewmaster".

- KC-130T Parts Obsolescence: POA&M to identify parts with Diminishing Manufacturing Sources and to provide options for sustainment or outsourcing through completion of the KC-130J transition.

- 4th MAW KC-130J Transition: POA&M to transition Reserve Component VMGR squadrons from the KC-130T to the KC-130J aircraft, beginning in FY14.

- Tactical Systems Operator Sundown: POA&M to manage sundown of existing inventory of Warrant Officer and Enlisted Tactical Systems Operators.

Performance / Systems

- Range (20,000-lb Payload) . . . . . 3,000 nm
- Empty Weight . . . . . 87,000 lb
- Fuel Capacity . . . . . 58,500 lb
- Maximum Normal Takeoff Weight (2.0g) . . . . . 155,000 lb
- Maximum Cruise Speed . . . . . 300 kts
- Cruise Ceiling . . . . . 25,000 ft
- Fuel Offload @ 1200nm / 20,000 ft . . . . . 30,000 lb
- Passenger Capacity (Ground Troops) 92
- Paratroop Capacity 64
- Air Ambulance Litter Capacity 74

Defensive Electronic Countermeasures:

- Radar Warning Receiver (RWR) . . . . . AN/APR-39A(V)2
- Advanced Missile Warning System and Laser Detecting Set . . AN/AAR-47(V)2
- Advanced Countermeasure Dispenser System (CMDS) AN/ALE-47
- Advanced IR Countermeasure System . . . . . AN/ALQ-157A(V)1

MV-22B Osprey

Program Description

IOC: FY07

FOC: FY18

Procurement Objective: 360

Flight Hours

• Total – 80,396

• Operational – 70,449

Block Upgrades

• Block B: Improved reliability / maintainability, wing tanks, retractable probe

• Block C: Weather radar, upgraded Environmental Control System, Aircraft Survivability Equipment enhancements, Troop Commander Situational Awareness device, and new standby flight instruments

Program Update

• 30 Block A aircraft have been delivered

• 68 Block B aircraft have been delivered as of Jul 10

• 3 aircraft in Block A to Block B modification process

MCAS New River

• Transition complete

• MEU / OEF rotations ongoing

MCAS Miramar

• West Coast basing EIS Record of Decision Oct 09

• VMM-161 standup Oct 09

• VMM-166 standup Jun 10

Working Issues

CFT 1 (Doctrine and Training)

• West Coast / West PAC / Reserve Transition Strategy

CFT 2 (Organization and Manpower)

• West Coast / West PAC / Reserve Transition Strategy

• Squadron avionics structure review

CFT 3 (Material and Facilities)

• West Coast Environmental Impact Statement (Training)

• West PAC Environmental Impact Statement

• West PAC and Reserve basing and facilities strategy

• West Coast facilities

Performance / Systems

• Combat Radius: 2+30 en route, 30 min TOS (~325nm)

• Empty Weight : 35,000lbs

• Max Gross Weight: 52,600lbs VTOL / 57,000lbs STO

• Payload: Internal / External - 24 passengers / 12 litters / 12,500lbs

• Top Speed: 280 KCAS

• Cruise Speed: 240 KCAS

• Defensive Systems: AAR-47 B(V)2, APR-39 A(V)2, ALE-47, M240D 7.62 / GAU-16 Tail Gun, GAU-17 IDWS

CH-46E Sea Knight

Program Description

Mission: Conduct expeditionary medium-lift assault support, to include combat troop assault, transportation of personnel and supplies, Tactical Recovery of Aircraft and Personnel, and casualty evacuation in support of sea-based and sustained operations ashore. Conduct search and rescue.

Program Update

- IOC: 1964
- Planned retirement: 2017
- Inventory: 145 CH-46E, 3 HH-46E
- Targeted Sustainment upgrades to engines, avionics, and drivetrain in order to keep the aircraft safe, reliable, and relevant

Working Issues

- The CH-46E is standing down concurrently with MV-22B standup
- Mod efforts underway to upgrade ASE (LAIRCM)

Performance / Systems

- Combat Radius: 75 nm
- Max Gross Weight: 24,300 lbs
- Payload: up to 4,000 lbs
- Cruise Speed: 120 kts
- Defensive Systems: AAR-47, ALE-47, ALQ-157, APR-39, 2 x XM-218 .50 cal

UH-1N Huey

Program Description

The Huey is the most successful military helicopter ever produced, with more than 16,000 delivered since 1956. Deliveries of the UH-1N to the Marine Corps began in 1971 and completed in 1979. Transition from the UH-1N to the UH-1Y is well underway and will complete in FY14 for the active component and FY15 for the reserve component.

Program Update

• Sundown for the UH-1N began in 2010 with the first aircraft flown to Davis Monthan for retirement.

• Approximately two aircraft will be retired per month until completion, and only survivability and forward fit initiatives will be pursued until the end of its service life.

• The current inventory is 77 UH-1Ns.

Working Issues

BRITE Star Block II
- 110 Systems on contract
- Five systems delivering each month
- Systems forward fit to the UH-1Y
- Outstanding IR and FLIR detection, recognition, and identification capabilities to include sensor fusion

Foreign Military Sales (FMS)
- FMS interest in retired UH-1N

Performance / Systems

- Combat Radius*: 63 nm
- Weapons Stations: Two
- Empty Weight: 7,200 lbs
- Max Gross Weight: 10,500 lbs
- Useful Payload (HOGE): 3,352 lbs
- Cruise Speed: 100 kts
- Offensive Systems: 2.75-inch rockets, fixed forward or crew served 7.62mm/GAU-17A/ gun and or crew served M240D/GAU-16 machine guns.
- Defensive Systems: AAR-47, ALE-47, ALQ-144, and APR-39

* (Mission radius with four fully loaded combat troops)

UH-1Y Venom

Program Description

The H-1 Upgrades Program, comprised of the UH-1Y and AH-1Z, is a single Acquisition Program which leverages 84% commonality of major components, enhancing deployability and maintainability while reducing training requirements and logistical footprint.

The "Yankee Forward" procurement strategy was initiated to prioritize replacement of the aging UH-1N (35 year average age) with UH-1Ys as quickly as possible.

USMC procurement objective is 160 UH-1Ys.

Program Update

• The UH-1Y achieved its Initial Operational Capability (IOC) on 08 Aug 08 and was granted Full Rate Production (FRP) approval on 17 Sep 08.

• Successfully completed first MEU Deployment (July 09), began sustained OEF deployment with a full squadron component of nine aircraft in Oct 2009, and will rejoin MEU Deployment cycle with the AH-1Z in FY11.

• MARFORPAC conversion to UH-1Y will complete in FY12 and MARFORCOM completes in FY14.

Working Issues

70 UH-1Ys (Lots 1-7) on contract
- 29 aircraft delivered to date (as of Jul 10)
- Increased Bell production to 18 UH-1Y (FY10)
- 4th Operational squadron began transition (Jul 10)
- Fielding completes in FY16

BRITE Star Block II
- Same capabilities as UH-1N

APKWS integration
- Provides first precision targeting capability for UH-1
- IOC FY11

Performance / Systems

- Combat Radius*: 129 nm
- Weapons Stations: Two
- Empty Weight: 11,700 lbs
- Max Gross Weight: 18,500 lbs
- Use Payload (HOGE): 5,930 lbs
- Cruise Speed: 153 kts
- Offensive Systems: 2.75-inch rockets, fixed forward or crew served 7.62mm/GAU-17A gun and or crew served M240D/GAU-16/GAU-21 machine guns
- Defensive Systems: AAR-47, ALE-47, and APR-39

* (Mission radius with eight fully loaded combat troops)

AH-1W Super Cobra

Program Description

The U.S. Marine Corps has been flying the AH-1W Super Cobra since 1986, with the last of the AH-1Ws delivered in 1998. Though the AH-1W will be replaced by the AH-1Z, the aircraft will remain in service until 2021. All AH-1Ws are planned for "remanufacture" into AH-1Zs.

Program Update

• AH-1Ws are currently being outfitted with the new Night Targeting System Upgrade (NTSU), a 3rd Generation Targeting FLIR with Laser Designator / Rangefinder and Color TV camera, which has made significant contributions to the quality of Offensive Air Support provided during OEF.

• In the summer of 2010, the AH-1W started taking receipt of Tactical Video Data Link (TVDL) systems that allow the aircraft to send and receive Full Motion Video (FMV) in C,L, and S Bands.

Working Issues

Work continues to increase the combat capability of the AH-1W with several initiatives:

- Helmet Display and Tracker System (HDTS)
- Advanced Precision Kill Weapon System (APKWS)
- 20mm Linkless Feed
- Moving Map
- Strikelink-A (VMF)
- Blue Force Tracker

Attack Helicopter Shortfall

• The operational shortfall of USMC attack helicopters is exacerbated not only by the induction of AH-1Ws into the AH-1Z remanufacture line but by 202K expansion and attrition of both combat and training mishaps. This shortfall will be most prevalent FY13-15 and FY17-19.

Performance / Systems

• Combat Radius*: 58 nm

• Weapons Stations: Four

• Empty Weight: 10,750 lbs

• Max Gross Weight: 14,750 lbs

• Useful Payload (HOGE): 3,986 lbs

• Cruise Speed : 131 kts

• Offensive Systems: 20mm cannon, 2.75 rockets, TOW, Hellfire with multiple warhead configurations and AIM-9 Sidewinder

• Defensive Systems : AAR-47, ALE-47 Dual Dispenser Pods, ALQ-144, and APR-39

* (30 min enroute, 30 min TOS, 20 min reserve)

AH-1Z Viper

Program Description

The H-1 Upgrades Program, comprised of the UH-1Y and AH-1Z, is a single Acquisition Program which leverages 84% commonality of major components, enhancing deployability and maintainability while reducing training requirements and logistical footprint.

"Zulu Build New (ZBN)" was programmed early in an effort to mitigate the significant operational shortfall of AH-1s caused by 202K expansion, AH-1W remanufacturing, and combat attrition. AH-1 operational shortfall will be especially pronounced.

The procurement objective is 189 AH-1Zs, with 58 of those aircraft to be ZBN.

Program Update

• The AH-1Z recently completed its final OPEVAL in Jun 10, performing well above expectations.

• The test team noted a significant increase in weapons accuracy with both the Target Sight System (TSS) and Optimized TopOwl (OTO) Helmet Mounted Sight and Display (HMSD), increasing lethality and threat standoff for AH-1Z aircrews.

• Aircraft reliability was very high during the test period.

Working Issues

28 AH-1Zs (Lots 1-7) currently on contract.

• Nine aircraft have delivered to date (as of Jun 10). Full Rate Production (FRP) is scheduled for 1st Qtr FY11 and Initial Operational Capability (IOC) will be achieved in the 2nd Qtr FY11.

• First Deployment is scheduled for 3rd Qtr FY11 as the AH-1Z is introduced to the MEU.

APKWS

• Integration testing is scheduled to begin 4th Qtr FY11

Performance / Systems

• Combat Radius*: 137 nm

• Weapons Stations: Six

• Empty Weight: 11,700 lbs

• Max Gross Weight : 18,500 lbs

• Useful Payload (HOGE): 5,558 lbs

• Cruise Speed: 137 kts

• Offensive Systems: 20mm cannon, 2.75 rockets, Hellfire with multiple warhead configurations and AIM-9 Sidewinder

• Defensive Systems: AAR-47 B(V)2, ALE-47, and APR-39

* (30 min enroute, 30 min TOS, 20 min reserve)

CH-53E Super Stallion

Program Description

The CH-53E is a heavy lift helicopter designed to transport heavy equipment and supplies during the ship-to-shore movement of an amphibious assault and during subsequent operations ashore.

The aircraft is capable of transporting 32,000 lbs externally at a cruise speed of 100 KIAS to a range of 50 NM, hover for 5 minutes, and return. The CH-53E was derived from an engineering change proposal to the twin-engine CH-53D. Improvements include the addition of a third engine to give the aircraft the ability to lift the majority of the Fleet Marine Force's equipment, a dual point cargo hook system, improved main rotor blades, and composite tail rotor blades. A dual digital automatic flight control system and engine anti-ice system give the aircraft an all-weather capability. The helicopter seats 32 passengers in its normal configuration and has provisions to carry 55 passengers with centerline seats installed. With the dual point hook systems, it can carry external loads at increased airspeeds due to the stability achieved with the dual point system.

Program Update

- CH-53E First Flight: 1974
- Initial Operating Capability: 1981
- Full Operating Capability: 1999
- Transition bulkhead life limit extension (6120 to 10,000 FH): Start – FY 2006 , projected completion – FY 2019
- Projected Retirement: 2026

Working Issues

- Complete Directional IR Countermeasures (DIRCM) installations
- Complete Integrated Mechanical Diagnostic System (IMDS) installations
- Critical Survivability Upgrade (CSU): DIRCM threat message to CDNU, Smart Dispensing, Forward Firing Buckets, Lightweight Armor, Day/Night HUD symbology for VDE, EGI data on 1553 Data bus, AAR-47 Hostile Fire Indication.
- Hot Day Performance Upgrade: Upgrading GE T64-416A with GE T64-419
- Condition Based Maintenance study: Analyze IMDS data to develop models that will predict component failures. Maintenance is based on component history and real-time operation vice inspection cycles based solely on hours or days since last inspection.

Performance / Systems

- Empty Weight: 37,500 lbs
- Max Weight on Wheels: 69,750 lbs
- Internal Load: 30 troops or 24 litter patients
- External Load: Hook rated to 36,000 lbs
- Max Gross Weight with External load: 73,500 lbs
- Flight Controls: Mechanical
- External Hook system: Single-point or Dual-point hook system
- Endurance: 4 hours (unrefueled) / indefinite (HAAR)
- Max Speed: 150 kts
- Armament: 2 XM-218 .50 caliber machine guns, 1 Ramp-mount GAU-21 .50 caliber machine gun
- ASE: DIRCM, AAR-47(v)2, ALE-47, Dual Dispensing Pods
- Network Systems: FBCB2 Blue Force Tracker

CH-53D Sea Stallion

Program Description

The CH-53D Sea Stallion is a more-capable version of the CH-53A introduced into the Marine Corps in 1966. The CH-53D is a medium lift helicopter designed to transport personnel, supplies and equipment in support of amphibious and shore operations.

It is shipboard compatible and capable of transporting internal and external cargo in adverse weather conditions both day and night. The twin-engine helicopter is capable of lifting 7 tons (6.35 metric tons). Improvements to the aircraft include T64GE-416 engines, elastomeric rotor head, external range extension fuel tanks, crashworthy fuel cells, ARC-210 radios, and defensive IR countermeasure equipment. The helicopter will carry 32 passengers in its normal configuration and 55 passengers with centerline seats installed.

Program Update

- CH-53D First Flight: 1969
- Initial Operating Capability: 1969
- Full Operating Capability: 1984
- Service Life Extension to 12,500 FH: Start – FY 2010, Completion – As necessary
- Projected Retirement: 2013

Working Issues

- Hot Day Performance Upgrade: Upgrading GE T64-413 with GE T64-416
- Quad Flare/Chaff Bucket Installation
- Service Life Assessment Program to 12,500 flight hours
- Evaluation of CH-53D inventory/parts from U.S. Air Force

Performance / Systems

- Empty Weight: 23,608 lbs
- Internal Load: 30 troops or 24 litter patients
- External Load: Hook rated to 20,000 lbs
- Max Gross Weight with External load: 42,000 lbs
- Flight Controls: Mechanical
- External Hook system: Single-point Hook System
- Endurance: 4.5 hours (unrefueled)
- Max Speed: 130 kts
- Armament: 3 GAU-21 .50 caliber machine guns
- ASE: ALQ-157A(V)1 IR Countermeasures (IRCM), AAR-47(V)2, ALE-47, Dual Dispensing Pods
- Network Systems: FBCB2 Blue Force Tracker

CH-53K

Program Description

The CH-53K new build helicopter is the only shipboard compatible helicopter that can lift 100% of the Marine Corps vertical lift equipment from amphibious shipping to inland objectives under high altitude and hot atmospheric conditions. The aircraft will be capable of externally transporting 27,000 lbs to a range of 110 NM in support of Baseline MEB and is the only heavy lift helicopter currently being developed within DoD.

Major system improvements of the new build helicopter include the GE-38-1B 7500 SHP engine, 88,000lbs gross weight airframe, low maintenance drive train and rotorhead, 4th Generation composite rotor blades, CAAS cockpit, integrated cargo pallet locking system, and triple hook capability. The CH-53K is designed to reduce logistics shipboard footprint, reduce operating costs per aircraft, reduce direct maintenance man hours per flight hours, and significantly reduce threat vulnerable area compared to the CH-53E.

Program Update

- Passed Milestone B (Initiation of engineering and manufacturing development phase) in Dec 05.
- System Development Design (SDD) contract awarded in April 2006.
- Preliminary Design Review completed September 2008
- Critical Design Review conducted July 2010
- Ground Test Vehicle Assembly begins February 2011
- First Flight scheduled for FY 2013. Procurement objective 200 aircraft.
- Milestone C (Initiation of production and development phase) scheduled for FY 2015
- Initial Operating Capability (IOC) scheduled for FY 2018
- Full Operating Capability (FOC) scheduled for FY 2026

Working Issues

- GE performance testing of the second GE38-1B engine for the CH-53K Program (First engine reached peak 8300 SHP, steady-state 7500 SHP)
- Sikorsky and PMA-261 in concert with Fleet Subject Matter Experts (SMEs) performing Front End Analysis (FEA) to determine how aircrew and maintainers will train to operate and maintain the CH-53K. Results will be used to build both aircrew and maintainer Training & Readiness Manuals.
- Conducting site surveys of Marine Corps bases and amphibious shipping to ensure CH-53K compatibility (Deficiencies noted for future upgrades through MILCON board).
- On the horizon: Capability Production Document (CPD), Contract for Low-Rate Initial Production (LRIP) aircraft

Performance / Systems

- Empty Weight: 43,750 lbs
- Max Weight on Wheels: 74,500 lbs
- Internal Load: 30 troops or 24 litter patients
- External Load: Hook rated to 36,000 lbs
- Max Gross Weight with External load: 88,000 lbs
- Flight Controls: Fly-by-Wire
- External Hook system: Triple hook system (ability to independently lift and release three separate external loads)
- Endurance: 4 hours (unrefueled) / indefinite (HAAR)
- Max Speed: 170 kts
- Armament: 3 GAU-21 .50 caliber machine guns
- ASE: Directional IR Countermeasures (DIRCM),
- Network Systems: Link-16, VMF, SATCOM

Presidential Aircraft

Program Descriptions

HMX-1 Mission: Provide helicopter transportation for the President of the United States, Vice President of the United States, members of the president's cabinet and foreign dignitaries, as directed by the Director, White House Military Office (WHMO).

- VH-3D
  - 11 aircraft
  - Program of Record into TBD (VXX aircraft TBD)
- VH-60N
  - 9 aircraft
  - Program of Record into TBD (VXX aircraft TBD)
- CH-53E
  - 5 aircraft
  - Program of Record into FY25 (5 x CH-53K)
- CH-46E
  - 6 aircraft
  - Program of Record into FY18 (8 x MV-22B)

Program Updates

- VH-71 program terminated by RMD 802
- VXX (Replacement Presidential Vertical Lift Aircraft Program)
  - JROC approved ICD Aug 2009
  - AoA kick-off Feb 2010
  - AoA target completion Sept 2010
  - CDD development underway

Working Issues

VH-3D
- Weight reduction program
- VH-3D Lift Improvement Program
  - Carson Blades
- Service Life Extension Program planned FY13
  - Additional 200 hours useful life
- Procured additional H-3 airframe to be used as training asset
  - Developing training aircraft configuration model

•VH-60N
- Cockpit Upgrade Program underway
- Structural Enhancement Program
  - To be conducted as part of aircraft SLEP
- Service Life Extension Program planned FY13
  - Additional 2000 hours useful life
- Investigating possible procurement of additional asset for training

Performance / Systems

Max Gross Weight (HOGE):

VH-3D – 21,500 pounds

VH-60N – 22,000 pounds

Cruise Speed:

VH-3D – 140 kts

VH-60N – 150 kts

Passenger Load:

VH-3D – 10 (plus pilot, co-pilot, and crew chief)

VH-60N – 10 (plus pilot, co-pilot, crew chief, and Communication Systems Operator (CSO))

C-20G Gulfstream G-IV

Program Description

Mission: Provide time sensitive air transport of high priority passengers and cargo between and within a theater of war.

Description:

GulfStream IV twin engine jet C20G. Capable of transporting 26 passengers or 6,000 lbs of cargo for a maximum range of 4,250 nautical miles. $62 million (new cost). 17 years old, acquired in FY93.

Program Update

15,000 Flight hrs expended, design life 20,000 hrs

- FY-10 depot level maintenance program transition to "on condition" maintenance regime to extend aircraft service life
- FY-12 equip aircraft with infrared countermeasure capability against man portable IR missile threat

HQMC intent to replace with "like in kind" aircraft.

Working Issues

C-20G: One aircraft. Based in Kaneohe Bay

- Used to support:
  - Commander US MARCENT
  - Commander US MARFORPAC

Performance / Systems

- Range: 4,250 NM
- Crew: 2 pilots, 2 crewmen
- Length: 88 ft 4 in
- Wingspan: 77 ft 10 in
- Height: 24 ft 5 in
- Max takeoff weight: 73,200 lb
- Empty weight: 35,500 lb
- Powerplant: 2 Rolls-Royce Tay turbofans
- Max Speed: M.85/459 KIAS
- Cruise Speed: M.85/459 KIAS

Program Description

Mission: Provide time sensitive air transport of high priority passengers and cargo between and within a theater of war.

Description: Boeing / McDonnell Douglass C-9B. Capable of transporting 90 passengers, or 20,000 lbs of cargo for a maximum range of 1,740 nautical miles.

Average Age: 35

C-9B

Program Update

HQMC intent is to replace the (2) C-9s with (2) C-40As.

Working Issues

- Acquisition of USMC C-40 aircraft
  - Fleet submission of Universal Needs Statement for C-9 Replacement Aircraft
- Maintaining C9B readiness until C-40 deliveries
- FAA SFAR 88 Fuel Tank compliance
- CNS-ATM compliance after 2014

Performance / Systems

- Range:1740 NM with 20,000 lbs
  2500 NM with 5,000 lbs
- Crew: 5 to 8
- Length: 119 ft 3 in
- Wingspan: 93 ft 5 in
- Height: 27 ft 6 in
- Max takeoff weight: 110,000 lb
- Empty weight: 59,700 lb
- Powerplant: 2 P&W JT8D-9 turbofan
- Max Speed: M.84/340 KIAS
- Cruise Speed: M.78/485 KTAS

UC-35C/D Citation

Program Description

Mission: Provide time sensitive air transport of high priority passengers and cargo (limited cargo capability) between and within a theater of war.

Description:
- UC-35C/D twin engine turbofan.
- Capable of transporting 7 passengers or 1,500 lbs of cargo for a maximum range of 1,300 nautical miles.
- Cost: $9M (new cost)
- Acquired: FY98-06
- ASE: installation FY07, 4 aircraft.
    - FY10, 2 SMCR aircraft.

Program Update

HQMC intent to replace current (12) UC-35C aircraft with (12) "Super Mid-Size" class transport with improved range and payload capabilities.

Working Issues

- Acquisition of "super mid-size" class aircraft.
    - Fleet submission of Universal Needs Statement for improved range and payload.
- Install ASE on 2 x 4th MAW UC-35D aircraft.
- Install ASE "A-Kits" in remaining UC-35D assets.
- Identify improved engine monitoring component.
    - Fix false over speed/ over temp indications.
- Seek super mid size extended range replacement aircraft for UC-35C's.

Performance / Systems

- Range: 1300 NM
- Crew: 2
- Length: 48 ft 11 in
- Wingspan: 52 ft 2 in
- Height: 15 ft 0 in
- Max takeoff weight: 16,300 lb
- Empty weight: 9,395 lb
- Powerplant: 2 P&WC JT15-D turbofans
- Cruise Speed: M.755/420 KTAS

UC-12B/F King Air

Program Description

Mission: Provide time sensitive air transport of high priority passengers and cargo between and within a theater of war.

Description:
- Beechcraft UC12B/F (King Air 200) twin engine turbo-
- prop.
- Capable of transporting 7 passengers or 1,500 lbs of
- cargo for a maximum range of 1,200 nautical miles.
- Cost: $6M (new cost)
- Average Age: 2 7 Yrs

Program Update

HQMC interim intent is to retain (6) UC-12B/F.

Marine Aviation will gradually replace all UC-12B/F with UC-12W Huron aircraft.

Working Issues

- Acquisition of USMC UC-12W aircraft.
- Maintaining UC-12B/F readiness until UC-12W acquisition complete.
- CNS-ATM compliance
- No install of Aircraft Survivability Equipment for legacy UC-12B/F planned: Negative impact to payload.

Performance / Systems

- Range: 1200 NM
- Crew: 2
- Length: 43 feet 10 inches
- Wingspan: 54 ft 6 in
- Height: 15ft 0 in
- Max takeoff weight: 12,500 lb
- Empty weight: 7,755lb
- Powerplant: 2 P&WC PT6A-41/42 turbo-prop
- Max Speed: 294 KIAS

Program Description

Mission: Provide time sensitive air transport of high priority passengers and cargo between and within a theater of war.

Description:
- Capable of transporting 8 passengers or 2,500 lbs of cargo for a maximum range of 1,500 nautical miles.
- ASE installed.
- CNS/ATM current.
- Cargo door.
- Cost: $9.1M

UC-12W Huron

Program Update

Marine Aviation intent is to replace all UC-12B/F with UC-12W Huron aircraft.

- Acquisition of additional 6 x UC-12W aircraft
- Developmental Test & Evaluation of UC-12W GFE
- Develop NATOPS and technical publications
- Delivery to Fleet of first 6 x UC-12W
- Retrofit 2 x Block One aircraft with Extended Range Tanks: Deliver Dec 2010/Jan 2011
- Acquire and retrofit Extended Range Tanks for remaining 4 x Block One aircraft
- Acquire and integrate 3rd forward firing kinematic flare dispenser for Block One aircraft

- Range: 1500 NM without ER tanks, 2000 NM with ER tanks
- Crew: 2
- Length: 46 feet 8 inches
- Wingspan: 57 ft 11 in
- Height: 14ft 4 in
- Max takeoff weight: 16,500 lb
- Empty weight: 10,200lb
- Powerplant: 2 P&WC PT6A-60A turbo-prop
- Max Speed: 300 KIAS

Working Issues

Performance / Systems

RQ-7B Shadow (MCTUAS)

Program Description

Primarily an aerial reconnaissance system supporting target acquisition, command & control and ISR support to the MEF commander and his subordinate units.

Marine Corps procured began in 2007 through an existing Army UAS program, the Chairman of the Joint Requirements Oversight Council (JROC) signed the Mission Need Statement (MNS) for this capability in 1990. In 2007, Marine Requirements Oversight Council (MROC) adopted JROC documents and authorized procurement to replace RQ-2 Pioneer UAS.

Each VMU squadron possesses three RQ-7B systems with each system comprised four air vehicles and two ground control stations. VMUs are organized to provide up to three detachments of 51 Marines each providing up to 12 hours of daily support or deploy as an intact squadron to provide continuous 24 hour daily support.

Program Update

- Fielding
  - The RQ-7B has been fully fielded to all (three) active duty squadrons,
  - One system has been fielded to VMU-4 (4th MAW).
- Payloads
  - Laser Designator and Communications Relay payloads upgrades have been partially fielded.
  - These upgrades have provided an unprecedented level of fires integration and rapid and effective air-ground coordination.
- Wing extensions and engine upgrades have improved performance for carrying payload upgrades.

Working Issues

Stand-up of VMU-4 (4th MAW) in Ft Hood, TX will complete system fielding in FY11.

Upgrades are coordinated via Army PM UAS and include the following efforts:

- Laser Designator
- Universal GCS
- TCDL (Tactical Common Data Link)
- Wing Extension
- Weaponization
- SRP (Software Reprogrammable Payloads)
- CORPORAL (Collaborative On-Line Reconnaissance Provider/Operationally Responsive Attack Link)

This MCTUAS requirement will later be fulfilled by a larger and more capable Group-4 system that will replace the RQ-7B (a Group-3 UAS) beginning in FY16.

Performance / Systems

- Combat Radius - 75nm
- Weapons Stations - TBD
- Empty Weight – 186 lbs
- Max Gross Weight & Use Payload - 350 lbs
- Top Speed – 105 Kts (dash)
- Cruise Speed w/ Payload – 65 Kts (loiter)
- Offensive Systems – POP300D Laser Designator
- Payloads-
  - Communications Relay (VHF/FM)
  - EO/IR Sensor
  - Laser Pointer
  - Laser Designator

RQ-11B Raven (SUAS)

Program Description

Aerial reconnaissance system supporting tactical situational awareness to battalion and company level commanders. The electro-optical or infrared optics support surveillance, pre-raid reconnaissance, harassment, deception, target acquisition, and battle damage assessment. battalion and company level commander and his subordinate units.

Smallest and most numerous UAS in the Marine Corps, 467 systems (each with three aircraft) are being fielded to battalion level units across all MARFORs. Four systems are assigned to infantry, LAR, and tank battalions and one system to other units such as artillery, MWSS, CEB, H&S battalions, and MLG units. Two Marines will operate one system with an rechargeable aircraft battery life of 90 minutes.

Program Update

- DDL (Digital Data Link) replacing 8 channel analog control link.
- Fielding of systems now reaching non-infantry units (MAW and MLG units).
- OPNAV 3710.7 Interim Change 40 contains general provisions for standardized flight operations and ORM for Group-1 UAS.
- PMA-263 actively scheduling unit training via MTT, to be superseded by formal TECOM program (POM-13).

Working Issues

Formalized Training Program

- Contractor MTT is interim solution since program implementation
- TECOM/NAVAIR team drafting NTSP (Naval Training Systems Plan)
- NTSP is prerequisite to TECOM funding for formal training program.

Standard employment tactics and certification

Chairman Joint Chiefs of Staff Instruction (CJCSI 3255.01)

- Short Title: Joint Minimum UAS Training Standards (JUMTS)
- Requires common joint training standards by end of 4Q FY11
- Sets minimum aeronautical knowledge and standardization for all operators

Performance / Systems

- Combat Radius – 15km (DDL) line of site
- Max Gross Weight & Use Payload – 4.2 lbs
- Backpack Weight – 17 lbs
- Speed – 17 to 44 kts

Payloads

- Front-look and side-look high-resolution EO camera with electronic Pan-Tilt-Zoom and digital stabilization; or

- 320x240 thermal imager

Program Description

An unmanned multi-role, strike and ISR platform , this system will replace the RQ-7B Shadow systems within the Marine Aircraft Wing. With added capabilities for expeditionary deployment, electronic warfare, and SIGINT it will provide a persistent ISR and strike platform to the MEF commander and his subordinate units.

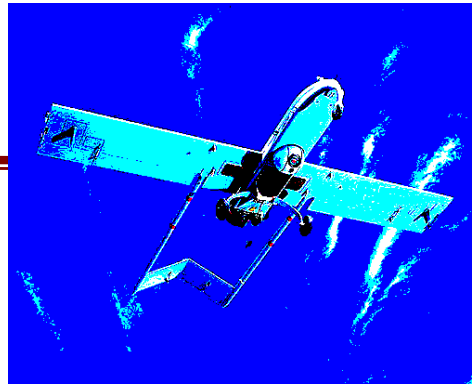
Program Update

•AOA will begin FY11

•Marine Corps has initiated per JCIDS activity in POM-12. Capability gap for this system was recognized by the JROC under the program titled VUAS. Future development will proceed to Analysis of Alternatives (AoA) and Capabilities Development Document (CDD) by 1st Qtr FY11.

•Planned initial fielding for the MCTUAS (Group-4) is during FY16.

MQ-__ MCTUAS (Group-4)



As a replacement system for the RQ-7B, each VMU squadron will possesses three MCTUAS systems. VMU will continue to be organized to provide up to three detachments of each providing up to 12 hours of daily support or deploy as an intact squadron to provide continuous 24 hour daily support.

- Combat Radius -
- Weapons Stations -
- Empty Weight –
- Max Gross Weight & Use Payload
- Top Speed –
- Cruise Speed w/ Payload –
- Offensive Systems –
- Payloads
  - Kinetic ordnance
  - Communications Relay (VHF/FM)
  - EO/IR Sensor
  - Laser Pointer
  - Laser Designator

Working Issues

Performance / Systems

RQ-__ TBD (STUAS)

Program Description

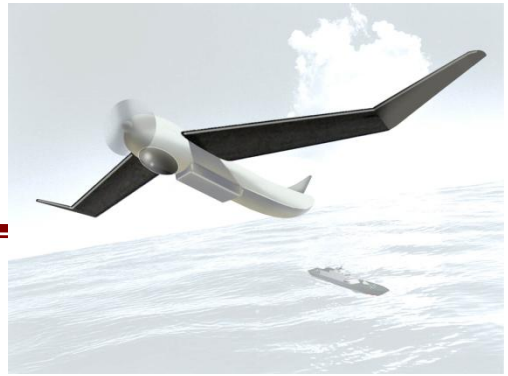
Primarily an aerial reconnaissance system supporting target acquisition, command & control and ISR support to the MEB or MEU commander and his subordinate units.

In 2005, the Marine Requirements Oversight Council validated an urgent need for aerial reconnaissance support to the MEB/MEU level MAGTF. Source selection anticipated in 4th Qtr FY10 to replace Boeing contracted "ISR Services" that are currently supporting this requirement.

Each VMU squadron will possesses nine STUAS systems with each system comprised four air vehicles and two ground control stations. VMUs are organized to provide up to nine detachments of nine Marines capable of providing 10-24 hours of reconnaissance support to the ground commander.

Program Update

- Source selection complete: InSitu Integrator will be the STUAS
- Fielding priority to operational VMU squadrons
- 202K plus-up providing manpower structure starting in FY12.
- New Equipment Training (NET) to provide initial conversion training for VMU operators
- PMA-205 site surveys completed for potential formal training locations.



Working Issues

- Source selection complete
- EOC (Early Operational Capability) 6 months after selection, 2Q FY11
- IOC FY12 FOC FY16
- Potential funding shift Green dollar to Blue dollar POR (similar to shift accomplished with the RQ-7 Shadow POR).
- Heavy Fuel Engine upgrade
- HMMWV replacement and potential impacts on Government Furnished Equipment (GFE).

Performance / Systems

- Combat Radius – 50nm (min)
- Max Gross Weight & Use Payload - 150 lbs (max)
- Top Speed - 85 Kts (min)
- Offensive Systems – Laser Designator

Cargo UAS

Program Description

Provides an organic, precision, unmanned, aerial resupply capability in order to minimize loss of personnel, equipment and supplies on ground resupply missions and to provide an alternate means of aerial delivery when weather, terrain or enemy pose and unsuitable risk to rotary wing (RW) assets.

Contract cargo UAS service sought via MARCETN JUONS in January 2010. J8 approved JUONS and assigned to USMC by Joint Rapid Acquisition Cell, (JRAC) for immediate USMC resolution.

Program Update

Two candidate systems successfully completed concept demonstrations in 2Qtr FY10.

- Boeing A-160 Hummingbird (MQ-18)
- Lockheed-Martin/Kman KMax

Request for Proposal (RFP) in draft for contract selection.

Working Issues

Industry proposals being received for pending contract award.

Resulting contract to undergo development and training then deploy to OEF for Military User Assessment (MUA) in 4Qtr FY11.

Performance / Systems

- Combat Radius - 124nm
- Top Speed – 70 kts
- Delivery Accuracy – 10m (BLOS)
- Payload Capability – 750 lbs at 12,000’MSL (HOGE)

Program Description

Composite Tracking Network (CTN): The CTN system is comprised of commercial-off-the-shelf (COTS) and non-development item (NDI) subsystems adapted from the USN Cooperative Engagement Capability (CEC).

The CTN system will interface with C2 systems and sensors to provide the MAGTF and joint task force commanders a ground-based sensor netting solution that correlates sensor measurement data (target velocity and position) from local and remote radars into the CEC network. This data effectively will increase situational awareness by providing accurate, composite, real-time surveillance tracks to support Sea Shield and Naval Integrated Fire Control-Counter Air.

CTN will provide the MAGTF with: increased track quality, improved track continuity, real-time sensor networking, enhanced situational awareness (SA) and interoperability, and s single integrated air picture that supports engagement decision and execution.

Program Update

- CTN ORD Change 1 approved 27 June 2001
- CEC Operational and Organizational Concept (O&O) approved 12 Apr 06
- CPD in development
- ACAT III designation in Nov 01
- USMC led with US Navy and US Army cooperation
- The CTN program is executing a single-step to full capability acquisition strategy by integrating Commercial Off-the-Shelf (COTS) and Non-Development Item (NDI) subsystems

CTN

- Obtain Information Assurance Authority to Operate
- Obtain Joint Interoperability Certification
- Successfully complete Follow-On Test & Evaluation
    - Ensure resolution of the Full-Rate Production/Limited Fielding Decision Independent Logistics Assessment Report (ILAR)
    - MS C Decision (Oct 08)
    - IOT&E (Aug-Sep 09)
    - FRP/Limited Fielding Decision (Apr 10)
    - FOT&E (Aug 10)
    - IOC (Apr 11)
    - FOC (May 16)

AAO: 27

Working Issues

Performance / Systems

CAC2S

Program Description

The Common Aviation Command and Control System is the command and control component of the Aviation C2 family of systems. The CAC2S will replace six legacy platforms and provides an expeditionary and common C2 platform for Marine Aviation that is employable from the sea base and ashore. As a joint force C2 enabler, the CAC2S will help transform EMW concepts into capabilities that will fully support joint operations

• CAC2S is an ACAT I MAIS program and the cornerstone of the MACCS, providing aviation command posts, air defense, air support, air operations, and air traffic control capabilities

• Expeditionary: Self-deployable from the sea with organic lift

• Scalable: Individual Marine portable to Tactical Air Command Center in support of a major theater of war

• Flexible: Multi-function operation centers (sea based, and ground based)

• CAC2S fuses real-time/non-real-time data providing a common operational picture at every CAC2S node

Program Update

• Milestone C rescinded April 2010. MSC decision scheduled for Nov 2010

• ACAT I MAIS designated Dec 07

• IOC: FY11

• FOC: TBD

Working Issues

• The CAC2S program was restructured in 2009 and will be developed and fielded in 2 phases.

• The CAC2S will be comprised of three primary components. The processing and display sub-system (PDS), Communications sub-system (CS) and Sensor data sub-system (SDS)

• Phase 1 will leverage existing MACCS C2 systems and provide an initial improved situational awareness and command capability. The development in this phase will focus on the PDS and CS.

• Phase 2 will provide the full CAC2S capability as outlined in the capabilities production document.

• CAC2S software is the foundation for MAGTF C2

Performance / Systems

• AAO: 50 PDS, 75 CS, 39 SDS

• Key Performance Parameters:

• Net Ready

• Data Fusion

• Scalable: 8 – 160+ operator positions

AN/TPS-59 (V3)

Program Description

The AN/TPS-59 (V3) is a 3D long range radar. It is the primary sensor for the MACCS and provides the MAGTF with airspace surveillance of Air Breathing Targets & Theater Ballistic Missiles.

- Fielded in 1984
- Upgraded in 1998 (Theater Ballistic Missile capability)
- Post production sustainment efforts keep radar viable against threats
- As part of CEC/CTN network, will provide early warning and situational awareness updates to other sensors and weapons platforms
- In the Sustainment Phase of Acquisition Life Cycle

Program Update

In Operations Support, Sustainment Phase

- Increment I effort underway (field modified control shelters)
  - IOC = Nov 2010 / May 2011
  - FOC = Apr 2011 / Oct 2011
- Increment II (Notional)
  - MS C = Nov 2012 / May 2013
  - IOC = Oct 2014 / Apr 2015
  - FOC = Sep 2015 / Mar 2016
- On-going technology development and risk reduction efforts include:
  - Antenna Transmitter Group improvements
  - Transmit / Receive module improvements

Working Issues

- Designated a Special Interest Program by OSD AT&L in Feb 2009

- Designation will not preclude USMC requirement to sustain legacy AN/TPS-59 or to improve the array to address DMS / obsolescence issues

- HQMC DC/A guidance to sustain radar to 2025 (Jul 2009). Addressed by Program Office through incremental Engineering Change Proposals and Tech Refresh Initiatives to address Diminishing Manufacturing Sources (DMS) and Obsolescence.

- Increment I: Data Processing Group Tech Refresh to address DMS issues in the control shelters' electronics.
- Increment II: DMS and Obsolescence Combined ECPs & Test Events

Performance / Systems

MACS	1 MAW	2
MACS	2 MAW	2
MACS	3 MAW	2
MACS	4 MAW	2
MCTSSA	Camp Pendleton, CA	1
MCCES	29 Palms, CA	1
MCLB	Albany, GA	1
Total		11

Program Description

The Ground/Air Task Oriented Radar (G/ATOR) is a 3D, short/medium range multi-role radar designed to detect unmanned aerial systems, cruise missiles, air breathing targets, rockets, artillery and mortars.

G/ATOR satisfies warfighters' expeditionary needs across MAGTF spectrum and replaces five legacy radar systems with a single MAGTF solution.

G/ATOR performs air surveillance/defense, air traffic control, and ground weapons locating missions.

Program Update

• Designated an OSD ATL Special Interest Program February 2009

• MROC endorsed new program plan March 2010

Increment I

• MS B Approval on August 2005
  • Awarded SDD Phase Contract March 2007
  • Critical Design Review completed March 2009

Increment II
  • Technical Readiness Assessment
  • Completed April 2008

Increment III and Increment IV

• Draft CDD in MCATS (service) staffing

• ACAT II

• IOC: FY16

• FOC: FY26

G/ATOR

The G/ATOR program will be developed in four increments.

• Inc I - Air Defense/Surveillance Radar (ADSR) replaces the AN/UPS-3 Tactical Defense Alert Radar, the AN/MPQ-62 Continuous Wave Acquisition Radar, and the AN/TPS-63 Air Surveillance radar.

• Inc II - Ground Weapons Locating Radar (GWLR) replaces AN/TPQ-46 Counter-Battery/ Target Acq

• Inc III - Enhanced Air Defense/Surveillance Radar (EAD/SR) does not replace any radars. Inc III will add enhanced air defense/surveillance capabilities.

• Inc IV - Expeditionary Airport Surveillance Radar (EASR) will replace the AN/TPS-73 Airport Surveillance Radar

• Inc I: Air Defense/Surveillance Radar (ADSR) Qty 17

• Inc II: Ground Weapons Locating Radar (GWLR) Qty 38

• Inc III: Enhanced Air Defense/Surveillance Radar (EAD/SR) Qty N/A

• Inc IV: Expeditionary Airport Surveillance Radar (EASR) Qty 14

AAO Qty 69

Working Issues

Performance / Systems

METMF(R) NEXGEN

Program Description

Since 1964, the Marine Corps primary expeditionary meteorological capability has been the Meteorological Mobile Facility or METMF. Through incremental upgrades in 1988 and 1998, the METMF evolved into the current Meteorological Mobile Facility Replacement (AN/TMQ-44A (V1)) or the METMF(R). The METMF(R) NEXGEN is a Post-Production Modification to the fielded METMF(R). An incremental replacement designed to meet emergent USMC Meteorological and Oceanographic (METOC) requirements. METMF(R) NEXGEN is poised to deliver a critical support capability to USMC MAGTF. Fully Integrated, FORCEnet compliant USMC tactical METOC system.

Program reflects significant collaboration between Resource (N2/N6) and Requirement (HQMC, DC/AVN) Sponsors to deliver a mobile, scalable replacement for legacy (fielded) systems.

Program Update

• N2/N6 has approved the procurement of 4 of the newer METMF9R) NEXGENs to be procured for the fleet btw FY11-FY12. The procurement objective will go to contract in the near future. Once a milestone "C" decision is approved, SPAWAR PMW-120 will begin the process of awarding the contract to procurement these systems.

• Depending on the amount of system developed and procured, as many as 11 systems may remain as part of the original AAO (15). Shortages will be addressed during POM-13.

Network Systems METMF(R) NEXGEN will consist of the following Commercial-off-the-Shelf, Govt-off-the-Shelf & Non Developmental Items capabilities:

• Processing
• Meteorological Satellite
• Meteorological Radar
• Local Sensor
• Remote Sensors
• Upper Air Sounding- Balloon/Box
• Communications (i.e., HF, UHF, VHF, SIPRNET)
• Shelter (portable, HMMWV-like)
• Scalable
• Modular
• Portable, mobile shelter
• Single C-130 transport
• Fully Integrated, Net Ready

Working Issues

• Capability Production Document (CPD) is currently being staffed at N2/N6. The anticipated completion date is early Aug 2010. Milestone "C" decision anticipated during 2nd Qtr FY11.

• Current OCO funding request is being staffed through N88 ($25) for OPN for METMF(R) NEXGEN.

• Prototype testing is occurring at MCAS Miramar to ensure all new systems are functioning effectively and seamlessly.

• Additionally, three systems will be fielded during FY15 to the Intel battalions.

Performance / Systems

P-19 FFV Replacement

Program Description

This initiative replaces the A/S32P-19A Aircraft Crash and Structure Fire Fighting Truck, TAMCN D1064, known as the P-19A. The P-19A, introduced into service in 1984, with a service life of 12 years, has undergone depot level rebuild two times.

• The P-19A is the Marine Corps' only major Aircraft Fire Fighting Vehicle

• This vehicle is utilized at Marine Corps Air Stations and Forward Operating Bases for immediate response to aircraft emergencies (primary) and structural fires (secondary).

• The P-19A Replacement will be employed primarily by the Marine Wing Support Squadrons of the Marine Aircraft Wings and by the Marine Corps Air Stations' firefighters supporting flight operations.

• The P-19A Replacement provides rescue and aircraft fire fighting capabilities to permanent and expeditionary airfields throughout the Marine Corps.

Program Update

POM-12

- $19.1M seed money redirected from another program by LID; new start Program of Record
- SECDEF via P&R authorized additional funding to WIPEB which the P-19 received $132.3M fully funding the program across the FYDP.

MCPC	APPN	FY2012	FY2013	FY2014	FY2015	FY2016	FYDP
430308	RDTEN	$2,303	$6,501	$2,068	$0	$0	$10,872
430308	PMC	$0	$0	$20,764	$59,530	$57,133	$137,427
430308	OMMC	$0	$0	$629	$1,126	$1,404	$3,159
	TOTAL	**$2,303**	**$6,501**	**$23,461**	**$60,656**	**$58,537**	**$151,458**

Working Issues

• P-19A Replacement Initial Operational Capability (IOC) is planned for Fiscal Year (FY) 2016. IOC is achieved when one MWSG has received a complete issue of P-19A Replacements, the assigned mechanics and crews have received initial training at the Operator/Crew, Field and Sustainment levels and sufficient repair parts are in place to support operations.

• P-19A Replacement Full Operational Capability (FOC) is desired by FY 2017 to meet the Approved Acquisition Objective (AAO) of 166.

• MARCORSYSCOM and I&L proceeding with the SLEP of MWSS and MCAS P-19As to extend service life .

• Coordinating potential Commercial Off-the-Shelf (COTS) and tactical variant FFV replacement strategy (Co-advocates from HQMC Avn and I&L (LFS))

Performance / Systems

• 4-man crew

• 1,000 gallon water tank, 130 gallon foam concentrate tank

• Pump output of 750 gallons per minute (GPM) or greater

• EPA approved chemical firefighting agent (minimum of 500 lbs)

• National Fire Protection Association Standard 414 compliant

• JP-8 capable with range of 150 miles @ 55 mph

• 0 to 50 mph in 25 seconds or less

• Alternate Power Unit (APU) to reduce engine idle time

• Capability to draft water from a static supply source (structural panel-equipped)

Section 18 --- Glossary of Acronyms and Terms

AAB	Aviation Administrative and Security Support Branch
AC2	Aviation Command and Control
ACE	Aviation Combat Element
ADCP	Air Defense Communications Platform
ADR	Airfield Damage Repair
ADVTE	Aviation Distributed Virtual Training Environment
AETC	Air Force Education and Training Command
AMP	Aircraft Modernization Program
ANGB	Air National Guard Base
APP	Aviation Plans, Programs, Doctrine, Budget and Joint Matters Branch
APT	Aircrew Procedures Trainer
APW	Aviation Weapons Systems Requirements Branch
APX	Aviation Expeditionary Enablers Branch
ARC	Aviation Refueling Capability
ASCO	Aviation Support Coordination Office
ASL	Aviation Logistics Support Branch
ASM	Aviation Manpower Support Branch
ASN	Air Support Node
ASN(A)	Air Support Node (Airborne)
ATB	Aviation Training Branch
ATC	Air Traffic Control
ATCO	Aviation Transportation Coordination Office
ATDS	Aircraft Tactical Display System
ATNAVICS	Air Traffic Navigation Integration Coordination System
ATS	Aviation Training System

AvPlan	Aviation Plan
C2/RTU	Command and Control/Remote Terminal Unit
CAC2S	Common Aviation Command and Control System
CCS	Command and Control Sub-system
CCSPFW	Common Contingency Support Package - Fixed Wing
CCSPRW	Common Contingency Support Package - Rotary Wing
CFT	Cross Functional Team
CNATRA	Chief of Naval Aviation Training
CNATT	Center for Naval Aviation Technical Training
CNATTMARU	Center for Naval Aviation Technical Training, Marine Unit
CPT	Cockpit Procedures Trainer
CQ	Carrier Qualification
CSG	Carrier Strike Group
CTN	Composite Tracking Network
CWAR	Continuous Wave Acquisition Radar
DASC	Direct Air Support Center
DASC(A)	Direct Air Support Center (Airborne)
DASC(AS)	Direct Air Support Center (Airborne System)
DCA	Deputy Commandant of the Marine Corps for Aviation
DC CD&I	Deputy Commandant of the Marine Corps for Combat Development and Integration
DMRT	Deployable Mission Rehearsal Trainer
DOSS	Department of Safety and Standardization
DRRS	Defense Readiness Reporting System
EIS	Environmental Impact Statement
EMW	Expeditionary Maneuver Warfare
ESC	Executive Steering Committee
ESF	Expeditionary Strike Force

ESG	Expeditionary Strike Group
FFS	Full Flight Simulator
FISP	Fly-in Support Package
FMS	Foreign Military Sales
FOS	Family of Systems
FOSP	Follow-On Support Package
FRC	Flat-Rack Refueling Capability
FRS	Fleet Replacement Squadron
FTD	Flight Training Device
FTU	Fixed Wing Training Unit
FYDP	Future Years Defense Plan
G/ATOR	Ground/Air Task Oriented Radar
GBAD	Ground Based Air Defense
GAR	Grade Adjusted Recapitulation
GCS	Ground Control Station
GMFP	Global Military Force Posture
HMH	Marine Heavy Helicopter Squadron (CH-53E/D)
HMHT	Marine Heavy Helicopter Training Squadron (CH-53 E/D)
HMLA	Marine Light Attack Helicopter Squadron (AH-1W/Z; UH-1N/Y)
HMLAT	Marine Light Attack Helicopter Training Squadron (AH-1W/Z; UH-1N/Y)
HMM	Marine Medium Helicopter Squadron (CH-46E)
HMMT	Marine Medium Helicopter Training Squadron (CH-46E)
HMX-1	Marine Helicopter Squadron One
IOC	Initial Operational Capability
IPT	Integrated Product Team

ISMO	Information Systems Management Office
JMATS	Joint Maintenance and Aircrew Training System
JRB	Joint Reserve Base
JSS	JICO Support System
LAAD	Low Altitude Air Defense
LVSR	Logistics Vehicle System Replacement
LVS	Logistics Vehicle System
MACCS	Marine Air Command and Control System
MACS	Marine Air Control Squadron
MACG	Marine Air Control Group
MALS	Marine Aviation Logistics Squadron
MASS	Marine Air Support Squadron
MATCALS	Marine Air Traffic Control and Landing Facility
MATSS	Marine Aviation Training System Site
MAW	Marine Aircraft Wing
MAWTS	Marine Aviation Weapons and Tactics Squadron
MCAF	Marine Corps Air Facility
MCALMS	Marine Corps Aviation Learning Management System
MCASMP	Marine Corps Aviation Simulation Master Plan
MCCVDb	Marine Corps Common Visual Database
MCMP	Marine Corps Master Plan
METMF-R	Meteorological Mobile Facility - Replacement
MMF	Mobile Maintenance Facility
MROC	Marine Requirements Oversight Council
MRRS	Multi-Role Radar System
MOSLS	Minimum Operating Strip Lighting System
MPG	Maritime Prepositioning Group

M-SHARP	Marine Sierra Hotel Aviation Readiness Program
MTACS	Marine Tactical Air Command Squadron
MWCS	Marine Wing Communications Squadron
MWHS	Marine Wing Headquarters Squadron
MWSG	Marine Wing Support Group
MTVR	Medium Tactical Vehicle Replacement
MWSS	Marine Wing Support Squadron
NALCOMIS	Naval Aviation Logistics Command Management Information System
NAV	Navigator
NETC	Naval Education and Training Command
NFO	Naval Flight Officer
NITES IV	Naval Integrated Tactical Environmental System IV
NPDC	Naval Personnel Development Command
OFT	Operational Flight Trainer
OLF	Outlying Field
OS/CS	Operations Subsystem/Communications Subsystem
PCSP	Peculiar Contingency Support Package
POM	Program Objective Memorandum
POR	Program of Record
PR	Program Review
SAT	Systems Approach to Training
SCIF	Sensitive Compartmented Information Facility
SHORAD	Short-Range Air Defense
SHORCAL	Shore-Based Aviation Consolidated Allowance List
TACAN	Tactical Air Navigation
TAFDS	Tactical Airfield Fuel Dispensing System
TAOM	Tactical Air Operations Module
TBMCS	Theater Battle Management Core System

TEn	Tactical Environment
TOFT	Tactical Operational Flight Trainer
TRAM	Tractor, Rubber-tired, Articulated steering, Multi-purpose
TSA	Training Support Allowance
TTF	Transition Task Force
TWPS	Tactical Water Purification System
UOC	Unit Operations Center
UPT	Undergraduate Pilot Training
VMA	Marine Attack Squadron (AV-8B)
VMAQ	Marine Tactical Electronic Warfare Squadron (EA-6B)
VMAT	Marine Attack Training Squadron (TAV-8B)
VMFA	Marine Fighter Attack Squadron (F/A-18 / JSF))
VMFA(AW)	Marine All-Weather Fighter Attack Squadron (F/A-18)
VMFAT	Marine Fighter Attack Training Squadron (F/A-18)
VMGR	Marine Aerial Refueler Transport Squadron (KC-130J/T)
VMGRT	Marine Aerial Refueler Transport Training Squadron (KC-130J)
VMM	Marine Tiltrotor Squadron (MV-22B)
VMMT	Marine Tiltrotor Training Squadron (MV-22B)
VMU	Marine Unmanned Aerial Vehicle Squadron (UAS)
VMX	Marine Operational Test and Evaluation Squadron (MV-22 / CH-53 / F-35)
VUAS	Vertical Unmanned Aircraft System (UAS)
VXX	Presidential Helicopter Replacement Program
WSO	Weapons Systems Officer
WST	Weapon System Trainer